Table 10 gp120

	MAb ID	Location	WEAU	Sequence	Neutralizing	Immunogen	Species(Isotype)
166	M85	gp120(C1 30-51 LAI)	gp120(29-50)	ATEKLWVTVYYGVPV-WKEATTT	N	451 Env	murine(IgG_1)

Donor: F. di Marzo Veronese

References: [Veronese92, Moore94a, Moore94c, Moore & Sodroski(1996)]

NOTES:

- M85: Immunoblot and RIP reactive for strains IIIB, 451, MN, RF, and RUTZ – binds deglycosylated gp120 [Veronese92]
- M85: C1 domain – mutation 40 Y/D impairs binding – the relative affinity for denatured/native gp120 is $< .01$, suggesting conformational component [Moore94a]
- M85: Binding inhibited by MAb 4D4#85, enhanced by conformationally sensitive anti-V3 MAb 5G11, and some anti-18 MAbs [Moore & Sodroski(1996)]

167	7E2/4	gp120(C1 31-50 LAI)	gp120(30-49)	TEKLWVTVYYGVPVW-KEATT	?	Env glycopro	murine(IgG)

Donor: S. Ranjbar, NIBSC, UK

References: [Moore94a]

NOTES:

- 7E2/4: C1 domain – the relative affinity for denatured/native gp120 is .07, suggesting conformational component [Moore94a]
- 7E2/4: UK Medical Research Council AIDS reagent: ARP3050

168	M92	gp120(C1 31-50 LAI)	gp120(40-49)	GVPVWKEATT	N	451 Env	rat(IgG_1)

Donor: F. di Marzo Veronese

References: [Veronese92, Moore94a, Moore94c]

NOTES:

- M92: Immunoblot reactive, RIP negative, but precipitates deglycosylated gp120 – reacts with strains IIIB, 451, MN, RF, and RUTZ [Veronese92]
- M92: The relative affinity for denatured/native gp120 is 1 [Moore94a]

169	4D4#85	gp120(C1 31-50 LAI)	gp120(40-49)	GVPVWKEATT	?	Env	murine(IgG)

Donor: S. Nigida and L. Arthur, NCI, Frederick, MD USA

References: [Moore94a, Moore94c, Moore & Sodroski(1996)]

NOTES:

- 4D4#85: C1 domain – the relative affinity, denatured/native gp120 is 0.1 – mutation 45 W/S impairs binding [Moore94a]
- 4D4#85: Inhibits binding of C1 MAb M85, C1-C5 discontinuous epitope MAbs 181 and 212A, and CD4 binding induced MAbs 48d and 17b [Moore & Sodroski(1996)]

170	M86	gp120(C1 42-61 LAI)	gp120(41-60)	VPVWKEATTTLFCAS-DAKAY	N	451 Env	murine(IgG_1)

Donor: F. di Marzo Veronese

References: [Veronese92, Moore94a]

NOTES:

- M86: Immunoblot and RIP reactive for strains IIIB, 451, MN, RF, and RUTZ – binds deglycosylated gp120 [Veronese92]
- M86: C1 domain – the relative affinity for denatured/native gp120 is 1 [Moore94a]

	MAb ID	Location	WEAU	Sequence	Neutralizing	Immunogen	Species(Isotype)
171	133/11	gp120(C1 64-78)	gp120(63-77)	EVHNVWATHACVPTD	L	IIIB gp120	murine(IgG_1)

References: [Niedrig92]

NOTES:

- 133/11: Region of overlap for reactive peptides is WATHA – weak neutralization of lab strains [Niedrig92]

172	133/237	gp120(C1 51-70 LAI)	gp120(60-69)	YDTEVHNVWA	L	IIIB gp120	murine(IgG_1)

References: [Niedrig92, Moore94a, Moore94c]

NOTES:

- 133/237: Region of overlap for reactive peptides is WATHA – weak neutralization of lab strains [Niedrig92]
- 133/237: The relative affinity, denatured/native gp120 is 1.4 – mutation of position 69 W/L impairs binding [Moore94a]

173	133/290	gp120(C1 61-70 LAI)	gp120(60-69)	YDTEVHNVWA	L	IIIB gp120	murine(IgG_1)

References: [Niedrig92, Thali93, Moore94a, Moore94c, Wyatt95]

NOTES:

- 133/290: Region of overlap for reactive peptides is WATHA – weak neutralization of lab strains [Niedrig92]
- 133/290: The relative affinity for denatured/native gp120 is 2.2 – mutation in position 69 W/L impairs binding [Moore94a]
- 133/290: Used for antigen capture assay, either to bind gp120 to the ELISA plate, or to quantitate bound gp120 [Wyatt95]
- 133/290: Reciprocal binding inhibition with the antibody 522-149, that binds to a discontinuous epitope – binding is enhanced by some C5 and C1 binding site antibodies [Moore & Sodroski(1996)]

174	D/3G5	gp120(C1 73-82 LAI)	gp120(72-81)	ACVPTDPNPQ	N	Baculovirus-expressed rgp120 LAI	murine(IgG_1)

References: [Bristow et al.(1994)]

NOTES:

- D/3G5: C1 MAb generated in a study of the humoral immune response to rgp120 and rgp160 [Bristow et al.(1994)]

175	D/6A11	gp120(C1 73-82 LAI)	gp120(72-81)	ACVPTDPNPQ	N	Baculovirus-expressed rgp120 LAI	murine

References: [Bristow et al.(1994)]

NOTES:

- D/6A11: C1 MAb generated in a study of the humoral immune response to rgp120 and rgp160 [Bristow et al.(1994)]

176	D/5E12	gp120(C1 73-92 LAI)	gp120(72-91)	ACVPTDPNPQEVVLV-NVTEN	N	Baculovirus-expressed rgp120 LAI	murine

References: [Bristow et al.(1994)]

NOTES:

- D/5E12: C1 MAb generated in a study of the humoral immune response to rgp120 and rgp160 [Bristow et al.(1994)]

	MAb ID	Location	WEAU	Sequence	Neutralizing	Immunogen	Species(Isotype)
177	4A7C6	gp120(C1 81-90 LAI)	gp120(80-89)	PQEVVLVNVT	?	Env glycopro	murine(IgG)

Donor: R. Tedder

References: [Thiriart89, Thali93, Moore93a, Moore94a, Moore94c, Moore & Sodroski(1996)]

NOTES:

- 4A7C6: Bound preferentially to denatured IIIB gp120 [Moore93a]
- 4A7C6: The relative affinity for denatured/native gp120 is 7.9 – mutation 88 N/P impairs binding [Moore94a]
- 4A7C6: C1 region epitope (88 N/P substitutions abrogates binding), but substitutions 380 G/F and 420 I/R also impaired binding [Moore94c]
- 4A7C6: Reciprocal binding inhibition with the antibody 133/192 – enhanced by anti-C5 antibodies, and C1 antibody 135/9[Moore & Sodroski(1996)]
- 4A7C6: UK Medical Research Council AIDS reagent: ARP 360

178	B242	gp120(C1 83-92 LAI)	gp120(82-91)	EVVLVNVTEN	N	Baculovirus-expressed misfolded rgp160 IIIB:NL43, MicroGenSys	murine(IgG_1)

References: [Bristow et al.(1994)]

NOTES:

- B242: C1 MAb generated in a study of the humoral immune response to rgp120 and rgp160 [Bristow et al.(1994)]

179	1D10	gp120(C1 81-100 LAI)	gp120(80-99)	PQEVVLVNVTENFDM-WKNDM	L	IIIB-rgp120	rat

References: [Dowbenko88, Berman et al.(1991), Nakamura92, Moore94a]

NOTES:

- 1D10: Cross-blocks 5B3 in IIIB-rsgp160 ELISA – type specific in rgp120 ELISA binding [Nakamura92]
- 1D10: The relative affinity for denatured/native gp120 is 13 – mutation 88 N/P impairs binding [Moore94a]

180	133/192	gp120(C1 91-100 LAI)	gp120(90-99)	ENFDMWKNDM	L	IIIB gp120	murine(IgG_1)

Donor: Matthias Niedrig

References: [Niedrig92, Moore93c, Moore94a, Moore & Sodroski(1996), Trkola et al.(1996)]

NOTES:

- 133/192: Epitope seems complex, binds multiple peptides – weak neutralization of lab strain [Niedrig92]
- 133/192: The relative affinity for denatured/native gp120 is 1.8 [Moore94a]
- 133/192: C1 region – substitutions 76P/Y, 113 D/A or R, 117 K/W, 420 I/R, 427 W/S impair binding, other substitutions enhanced binding [Moore94c]
- 133/192: Reciprocal binding inhibition with the antibody 4A7C6 – enhanced by some anti-C5 and-C1 antibodies [Moore & Sodroski(1996)]
- 133/192: Does not neutralize JR-FL nor block gp120 interaction with CCR-5 in a MIP-1β-CCR-5 competition study [Trkola et al.(1996)]

181	C6	gp120(C1 91-100 LAI)	gp120(90-99)	ENFDMWKNDM	?	mis-folded LAI rgp160	murine(IgG_1)

References: [Abacioglu et al.(1994), Moore94a]

NOTES:

- C6: C1 region – epitope boundaries mapped by peptide scanning, FNMW core [Abacioglu et al.(1994)]
- C6: The relative affinity for denatured/native gp120 is 0.9 [Moore94a]
- C6: There is FNM/FDM polymorphism in LAI-based peptides – N is essential (J. P. Moore, per. comm.)
- C6: NIH AIDS Research and Reference Reagent Program: 810

	MAb ID	Location	WEAU	Sequence	Neutralizing	Immunogen	Species(Isotype)
182	B2	gp120(C1 91-100 LAI)	gp120(90-99)	ENFDMWKNDM	?	mis-folded LAI rgp160	murine(IgG_{2b})

References: [Thali93, Abacioglu et al.(1994), Moore94a, Moore94c]

NOTES:

- B2: C1 region – epitope boundaries mapped by peptide scanning, FNMW core [Abacioglu et al.(1994)]
- B2: The relative affinity for denatured/native gp120 is 1.4 [Moore94a]
- B2: There is FNM/FDM polymorphism in LAI-based peptides, and N is essential (J. P. Moore, per. comm.)

183	D/4B5	gp120(C1 93-101 LAI)	gp120(92-100)	FNMWKNDMV	N	Baculovirus-expressed rgp120 LAI	murine

References: [Bristow et al.(1994)]

NOTES:

- D/4B5: C1 MAb generated in a study of the humoral immune response to rgp120 and rgp160 [Bristow et al.(1994)]

184	D/6B2	gp120(C1 93-101 LAI)	gp120(92-100)	FNMWKNDMV	N	Baculovirus-expressed rgp120 LAI	murine(IgG_1)

References: [Bristow et al.(1994)]

NOTES:

- D/6B2: C1 MAb generated in a study of the humoral immune response to rgp120 and rgp160 [Bristow et al.(1994)]

185	D/5A11	gp120(C1 93-101 LAI)	gp120(92-100)	FNMWKNDMV	N	Baculovirus-expressed rgp120 LAI	murine

References: [Bristow et al.(1994)]

NOTES:

- D/5A11: C1 MAb generated in a study of the humoral immune response to rgp120 and rgp160 [Bristow et al.(1994)]

186	B9	gp120(C1 93-96 LAI)	gp120(92-95)	FNMW	?	mis-folded LAI rgp160	murine(IgG_1)

References: [Abacioglu et al.(1994)]

NOTES:

- B9: C1 region – epitope boundaries mapped by peptide scanning [Abacioglu et al.(1994)]

187	B10	gp120(C1 91-100 LAI)	gp120(90-99)	ENFDMWKNDM	?	mis-folded LAI rgp160	murine(IgG_1)

References: [Abacioglu et al.(1994), Moore94a]

NOTES:

- B10: C1 region – epitope boundaries mapped by peptide scanning, FNMW core [Abacioglu et al.(1994)]
- B10: The relative affinity for denatured/native gp120 is 0.4 [Moore94a]
- B10: There is FNM/FDM polymorphism in LAI-based peptides, and N is essential (J. P. Moore, per. comm.)

188	L5.1	gp120(C1 89-103 IIIB)	gp120(78-92)	PNPQEVVLVNVTENF	?	vaccinia gp160	murine(IgG)

References: [Akerblom90]

	MAb ID	Location	WEAU	Sequence	Neutralizing	Immunogen	Species(Isotype)
189	B27	gp120(C1 94-97 BH10)	gp120(92-95)	FNMW	N	Baculovirus-expressed mis-folded rgp160 IIIB: NL43, MicroGenSys	murine(IgG_1)

References: [Abacioglu et al.(1994), Bristow et al.(1994)]

NOTES:

- B27: C1 region – epitope boundaries mapped by peptide scanning [Abacioglu et al.(1994)]
- B27: MAbs generated in the context of a study of the humoral immune response to rgp120 and rgp160 [Bristow et al.(1994)]

190	B35	gp120(C1 94-99 BH10)	gp120(92-97)	FNMWKN	?	mis-folded LAI rgp160	murine(IgG_1)

References: [Abacioglu et al.(1994)]

NOTES:

- B35: C1 region – epitope boundaries mapped by peptide scanning [Abacioglu et al.(1994)]

191	489.1(961)	gp120(C1 91-100 LAI)	gp120(90-99)	ENFDMWKNDM	?	Env	murine(IgG)

Donor: C. Bruck, SKB, Belgium

References: [Moore94a]

NOTES:

- 489.1: The relative affinity for denatured/native gp120 is 1 [Moore94a]
- 489.1: NIH AIDS Research and Reference Reagent Program: 961

192	T1.1	gp120(C1 91-100 LAI)	gp120(90-99)	ENFDMWKNDM	?	vaccinia gp160	murine(IgG)

References: [Akerblom90, Broliden90, Moore94a]

NOTES:

- T1.1: Also reacted in solid phase with gp120(234-248) NGTGPCTNVSTQCT [Akerblom90]
- T1.1: No ADCC activity – reactive peptide: NVTENFNMWKNDMVEQ, IIIB [Broliden90]
- T1.1: C1 region – the relative affinity for denatured/native gp120 is 1 [Moore94a]

193	T7.1	gp120(C1 91-100 LAI)	gp120(90-99)	ENFDMWKNDM	?	Env	murine(IgG)

References: [Akerblom90, Bolmstedt92, Moore94a, Moore94c]

NOTES:

- T7.1: The relative affinity of denatured/native gp120 is 4.0 [Moore94a]

194	T9	gp120(C1 91-100 LAI)	gp120(90-99)	ENFDMWKNDM	?	Env	murine(IgG)

Donor: Lennart Akerblom, Britta Wahren and Jorma Hinkula

References: [Akerblom90, Bolmstedt92, Moore94a, Moore94c]

NOTES:

- T9: The relative affinity of denatured/native gp120 is 7.9 [Moore94a]
- T9: C1 region – 45 W/S, 88 N/P, 256 S/Y, 262 N/T, 475 M/S, 485 1.83, and 491 I/F enhanced binding, no substitution tested significantly inhibited [Moore94c]

	MAb ID	Location	WEAU	Sequence	Neutralizing	Immunogen	Species(Isotype)
195	5B3	gp120(C1 91-100 LAI)	gp120(90-99)	ENFDMWKNDM	N	IIIB-rspg160	murine(IgG)

References: [Berman et al.(1991), Nakamura92, Beretta & Dalgleish(1994), Moore94a]

NOTES:

- 5B3: Blocks gp120 -CD4 binding [Berman et al.(1991)]
- 5B3: Cross-blocks 1D10 in competitive IIIB-rsgp160 ELISA – no neutralization – blocks IIIB-gp120 sCD4 binding – localized binding to residues 72-106 [Nakamura92]
- 5B3: The relative affinity of denatured/native gp120 is 8.3 [Moore94a]

196	MF49.1	gp120(C1 91-100 LAI)	gp120(90-99)	ENFDMWKNDM	?	Env	murine(IgG)

References: [Thiriart89, Moore94a]

NOTES:

- MF49.1: The relative affinity of denatured/native gp120 is 3.8 [Moore94a]

197	B20	gp120(C1 101-110 LAI)	gp120(100-109)	VEQMHEDIIS	?	mis-folded LAI rgp160	murine(IgG_{2a})

References: [Abacioglu et al.(1994), Moore94a]

NOTES:

- B20: C1 region – epitope boundaries mapped by peptide scanning – HEDII core [Abacioglu et al.(1994)]
- B20: The relative affinity for denatured/native gp120 is 1 [Moore94a]

198	B18	gp120(C1 101-110 LAI)	gp120(100-109)	VEQMHEDIIS	?	mis-folded LAI rgp160	murine(IgG_{2a})

References: [Abacioglu et al.(1994), Moore94a]

NOTES:

- B18: C1 region – epitope boundaries mapped by peptide scanning, HEDII core [Abacioglu et al.(1994)]
- B18: The relative affinity for denatured/native gp120 is 1 [Moore94a]

199	MF39.1	gp120(C1 101-110 LAI)	gp120(100-109)	VEQMHEDIIS	?	Env	murine(IgG)

References: [Thiriart89, Cook et al.(1994), Moore94a]

NOTES:

- MF39.1: Called 39.1, and is probably the same as MF39.1 – MAbs against the glycosphingolipid GalCer block HIV infection of normally susceptible CD4 negative cells from the brain and colon – MAbs against the N-terminal half of gp120 do not inhibit gp120 binding to GalCer – binding of GalCer to gp120 does not inhibit MAb binding [Cook et al.(1994)]
- MF39.1: The relative affinity of denatured/native gp120 is 30 [Moore94a]

200	T2.1	gp120(C1 101-120 LAI)	gp120(100-119)	VEQMHEDIISLWDQS-LKPCV	?	Env	murine(IgG)

Donor: Lennart Akerblom, Britta Wahren and Jorma Hinkula

References: [Akerblom90, Bolmstedt92, Moore94a, Moore94c]

NOTES:

- T2.1: The relative affinity for denatured/native gp120 is .27 – mutations 113 D/R, 106 E/A, and 117 D/A impair binding [Moore94a]

	MAb ID	Location	WEAU	Sequence	Neutralizing	Immunogen	Species(Isotype)
201	11/65	gp120(311-321 HXB10)	gp120(101-120)	EQMHEDIISLWDQSL-KPCVK	?	rgp120 BH10	rat(IgG_{2b})

References: [McKeating92a]

NOTES:

- 11/65: Binds only soluble gp120, not virion bound – used to quantitate gp120 shedding – numbering is incorrect? [McKeating92a]
- 11/65: UK Medical Research Council AIDS reagent: ARP3076

202	6D8	gp120(C1 101-120 LAI)	gp120(100-119)	VEQMHEDIISLWDQS-LKPCV	?	IIIB-rgp120	rat

References: [Dowbenko88, Nakamura92, Moore94a]

NOTES:

- 6D8: Highly cross reactive with multiple stains by rgp120 ELISA [Nakamura92]
- 6D8: The relative affinity for denatured/native gp120 is 15 – mutations 113 D/R and 113 D/A impair binding [Moore94a]

203	M96	gp120(C1 101-120 LAI)	gp120(100-119)	VEQMHEDIISLWDQS-LKPCV	N	451 Env	rat(IgG_{2a})

Donor: F. di Marzo Veronese

References: [Veronese92, Moore94a, Moore94c]

NOTES:

- M96: Immunoblot reactive for strains IIIB, 451, MN, RF, and RUTZ [Veronese92]
- M96: C1 region – the relative affinity for denatured/native gp120 is 6 [Moore94a]

204	37.1.1	gp120(C1 101-120 LAI)	gp120(100-119)	VEQMHEDIISLWDQS-LKPCV	?	Env glycopro	murine(IgG)

Donor: Claudine Bruck

References: [Thiriart89, Moore93a, Moore94a]

NOTES:

- 37.1.1: Called 37.1 – bound preferentially to denatured IIIB gp120 [Moore93a]
- 37.1.1: The relative affinity for denatured/native gp120 is 8.6 – mutations 113 D/R (not D/A) and 117 K/W impair binding [Moore94a]
- 37.1.1: UK Medical Research Council AIDS reagent: ARP327

205	187.2.1	gp120(C1 101-120 LAI)	gp120(100-119)	VEQMHEDIISLWDQS-LKPCV	?	Env glycopro	murine(IgG)

Donor: Claudine Bruck and Clothilde Thiriart

References: [Thiriart89, Moore93a, Cook et al.(1994), Moore94a, Moore94c]

NOTES:

- 187.2.1: Called 187.1, and is probably the same as 187.2.1 – bound preferentially to denatured IIIB gp120 [Moore93a]
- 187.2.1: Called 187.1, and is probably the same as 187.2.1 – MAbs against the glycosphingolipid GalCer block HIV infection of normally susceptible CD4 negative cells from the brain and colon – MAbs against the N-terminal half of gp120 do not inhibit gp120 binding to GalCer – binding of GalCer to gp120 does not inhibit MAb binding [Cook et al.(1994)]
- 187.2.1: The relative affinity for denatured/native gp120 is 7 – mutations 113 D/A (not D/R) and 117 K/W impair binding [Moore94a]
- 187.2.1: UK Medical Research Council AIDS reagent: ARP332

206	MF58.1	gp120(C1 101-120 LAI)	gp120(100-119)	VEQMHEDIISLWDQS-LKPCV	?	Env	murine(IgG)

References: [Thiriart89, Moore94a]

	MAb ID	Location	WEAU	Sequence	Neutralizing	Immunogen	Species(Isotype)
207	MF77.1	gp120(C1 101-120 LAI)	gp120(100-119)	VEQMHEDIISLWDQS-LKPCV	?	Env	murine(IgG)

References: [Thiriart89, Moore94a]

NOTES:

- MF77.1: The relative affinity for denatured/native gp120 is 11 [Moore94a]

208	MF119.1	gp120(C1 101-120 LAI)	gp120(100-119)	VEQMHEDIISLWDQS-LKPCV	?	Env	murine(IgG)

References: [Thiriart89, Moore94a]

NOTES:

- MF119.1: The relative affinity for denatured/native gp120 is 30 – mutations 113 D/A, 113 D/R, and 117 K/W impair binding [Moore94a]

209	MF4.1	gp120(C1 101-120 LAI)	gp120(100-119)	VEQMHEDIISLWDQS-LKPCV	?	Env	murine(IgG)

References: [Thiriart89, Moore94a]

NOTES:

- MF4.1: The relative affinity for denatured/native gp120 is 8 [Moore94a]

210	MF53.1	gp120(C1 101-120 LAI)	gp120(100-119)	VEQMHEDIISLWDQS-LKPCV	?	Env	murine(IgG)

References: [Thiriart89, Moore94a]

NOTES:

- MF53.1: The relative affinity for denatured/native gp120 is 10 [Moore94a]

211	135/9	gp120(C1 111-120 LAI)	gp120(110-119)	LWDQSLKPCV	L	IIIB gp120	murine(IgG_1)

Donor: Matthias Niedrig

References: [Niedrig92, Moore94a, Moore94c, Moore & Sodroski(1996), Trkola et al.(1996)]

NOTES:

- 135/9: Defines the epitope as gp120(114-123) MHEDIISLWD (core LWD?) – weak neutralization of lab strain [Niedrig92]
- 135/9: The relative affinity for denatured/native gp120 is 15 – mutation 113 D/R impairs binding to native and denatured, 113 D/A only to denatured [Moore94a]
- 135/9: Substitutions 106 E/A, 113 D/A or R, and 117 K/W impair binding, some substitutions enhance binding [Moore94c]
- 135/9: Binding is enhanced by some anti-C1 and anti-C5 antibodies – enhances binding of some anti-V3, anti-C4 and anti-V2 MAbs – 135/9 binds to predicted alpha-helix in C1 [Moore & Sodroski(1996)]
- 135/9: Does not neutralize JR-FL nor block gp120 interaction with CCR-5 in a MIP-1β-CCR-5 competition study [Trkola et al.(1996)]

212	MF46.1	gp120(C1 101-120 LAI)	gp120(110-119)	LWDQSLKPCV	?	Env	murine(IgG)

References: [Thiriart89, Moore94a]

NOTES:

- MF46.1: The relative affinity for denatured/native gp120 is 8.5 [Moore94a]

	MAb ID	Location	WEAU	Sequence	Neutralizing	Immunogen	Species(Isotype)
213	C4	gp120(C1 101-120 LAI)	gp120(110-119)	LWDQSLKPCV	?	mis-folded LAI rgp160	murine(IgG_1)

Donor: George Lewis

References: [Abacioglu et al.(1994), Moore93a, Moore94a]

NOTES:

- C4: Bound preferentially to denatured IIIB gp120 [Moore93a]
- C4: C1 region – epitope boundaries mapped by peptide scanning, BH10 core IISLW [Abacioglu et al.(1994)]
- C4: The relative affinity for denatured/native gp120 is 10 [Moore94a]

214	11	gp120(C1 101-120 LAI)	gp120(110-119)	LWDQSLKPCV	?	Env	murine(IgG)

References: [Thiriart89, Moore94a]

NOTES:

- 11: The relative affinity for denatured/native gp120 is 7.8 – mutation 113 D/R impairs binding [Moore94a]

215	12G10	gp120(C1 101-120 LAI)	gp120(110-119)	LWDQSLKPCV	?	Env	murine(IgG)

References: [Thiriart89, Moore94a]

NOTES:

- 12G10: The relative affinity for denatured/native gp120 is 17 – mutation 117 K/W impairs binding [Moore94a]

216	7C10	gp120(C1 101-120 LAI)	gp120(110-119)	LWDQSLKPCV	?	Env	murine(IgG)

References: [Thiriart89, Moore94a]

NOTES:

- 7C10: The relative affinity for denatured/native gp120 is 5.8 – mutation 117 K/W impairs binding [Moore94a]

217	W1	gp120(C1 102-121 LAI)	gp120(101-120)	EQMHEDIISLWDQSL-KPCVK	?	Env	murine(IgG)

Donor: D. Weiner, U. Penn.

References: [Moore94a]

NOTES:

- W1: The relative affinity for denatured/native gp120 is 6 – mutations 113 D/A, 113 D/R, and 117 K/W impair binding [Moore94a]

218	B33	gp120(V2 123-142 LAI)	gp120(122-146)	TPLCVSLKCTDLGNA-TNTNS	N	Baculovirus-expressed mis-folded rgp160 IIIB:NL43, MicroGenSys	murine($IgG_{2b\kappa}$)

Donor: Daniels

References: [Abacioglu et al.(1994), Bristow et al.(1994)]

NOTES:

- B33: There are two MAbs in the literature named B33. See also gp41, LAI 123-142 [Abacioglu et al.(1994)]
- B33: MAbs generated in the context of a study of the humoral immune response to rgp120 and rgp160 [Bristow et al.(1994)]
- B33: UK Medical Research Council AIDS reagent: ARP304, gp160/41 binding

---

	MAb ID	Location	WEAU	Sequence	Neutralizing	Immunogen	Species(Isotype)
219	6D5	gp120(V2 122-141 LAI)	gp120(121-145)	LTPLCVSLKCTDLKN-DTNTN	?	Env	murine(IgG)

Donor: S. Nigida and L. Arthur, NCI, Frederick, MD USA

References: [Moore94a, Moore94c]

NOTES:

- 6D5: The relative affinity for denatured/native gp120 is 15 – mutations Δ119-205 and 125 L/G impair binding [Moore94a]

---

220 C108G gp120(V2 162-169 HXB2) gp120(166-174) STSIRGKV L IIIB infection chimpanzee($IgG_{1\kappa}$)

References: [Warrier94, Wu95, Warrier95, Warrier96]

NOTES:

- C108G: High affinity, potent neutralization of HIV-1 IIIB – binding not affected by reduction of disulfide bonds – binding disrupted by removal of N-linked glycans – peptide binding lower affinity than glycosylated Env [Warrier94]
- C108G: Strain specificity: LAI, Bal, HXB2 – conformational character – glycosylation site at 160 critical – mutation of conserved glycosylation site at 156 increased epitope exposure [Wu95]
- C108G: Characterization of variable region [Warrier95]
- C108G: Synergistic neutralization of HIV-1 when combined with anti-V3 MAbs 0.5β and C311E, or anti-CD4BS MAbs, 1125H and 5145A – neutralization further enhanced by presence of both 1125H and 0.5β [Warrier96]

---

221 10/76b gp120(V2 162-171 BH10) gp120(166-175) STSIRGKVQ L(HXB10) BH10 rgp120 rat(IgG_{2a})

References: [McKeating93a, McKeating93b, Shotton95, Wu95]

NOTES:

- 10/76b: R to L substitution abrogated binding – human sera recognize epitope [McKeating93a]
- 10/76b: Cross-competes with MABs 10/76b and 11/4b – HXB2 neutralization escape mutant has the substitution I/T at residue 165 [Shotton95]
- 10/76b: Included in cross-competition and neutralization studies [Shotton95]
- 10/76b: HX10 strain specificity – binds native, deglycosylated, or dentured gp120 [Wu95]
- 10/76b: UK Medical Research Council AIDS reagent: ARP3077

---

222 11/4c gp120(V2 162-171) gp120(166-175) STSIRGKVQ L (HXB2) BH10 rgp120 rat(IgG_{2a})

References: [McKeating93a, Wu95, Shotton95]

NOTES:

- 11/4c: R to L substitution abrogated binding – human sera recognize epitope [McKeating93a]
- 11/4c: HX10 strain specificity – binds native, deglycosylated, or dentured gp120 [Wu95]
- 11/4c: Cross-competes with MABs 10/76b and 11/4b – HXB2 neutralization escape mutant has the substitution I/T at residue 165 [Shotton95]
- 11/4c: UK Medical Research Council AIDS reagent: ARP3035

---

223 11/41e gp120(V2 162-171) gp120(166-175) STSIRGKVQ L (HXB10) rgp120 LAI:BH10 rat(IgG_1)

References: [McKeating93a, Shotton95, Wu95]

NOTES:

- 11/41e: R to L abrogated binding – human sera recognize the epitope [McKeating93a]
- 11/41e: Included in cross-competition and neutralization studies [Shotton95]
- 11/41e: HX10 strain specificity – binds native and deglycosylated gp120 [Wu95]

	MAb ID	Location	WEAU	Sequence	Neutralizing	Immunogen	Species(Isotype)
224	11/4b	gp120(V2 162-171)	gp120(166-175)	STSIRGKVQ	L (HXB10)	rgp120 LAI:BH10	rat(IgG_{2a})

References: [McKeating93a, Shotton95, Wu95, Moore & Sodroski(1996)]

NOTES:

- 11/4b: A change from R to L abrogated binding – human sera recognize epitope [McKeating93a]
- 11/4b: Cross-competes with MAbs 10/76b and 11/4c – HXB2 neutralization escape mutant has the substitution I/T at residue 165 [Shotton95]
- 11/4b: HXB10 strain specificity – binds native, deglycosylated, or denatured gp120 [Wu95]
- 11/4b: Linear V2 epitope – reciprocal binding enhancement of anti-V2 discontinuous epitope antibodies (in contrast to BAT085) and CD4 inducible antibody 48d. Reciprocal inhibits BAT085 binding – inhibits CRA-3 binding CRA-3 doesn't inhibit 11/4b [Moore & Sodroski(1996)]

225	RSD-33	gp120(V2 162-171 BH10)	gp120(166-175)	STSIRGKVQ	?	BH10 gp120	?

Donor: R. Daniels (NIMR, UK)

References: [Moore93b]

226	6C4/S	gp120(V2 162-170 BH10)	gp120(166-174)	STSIRGKV	?	BH10 gp120	?

Donor: S. Ranjbar (NIBSC, UK)

References: [Moore93b]

NOTES:

- 6C4/S: UK Medical Research Council AIDS reagent: ARP3049

	MAb ID	Location	WEAU	Sequence	Neutralizing	Immunogen	Species(Isotype)
227	G3-4	gp120(V2 170-180 BH10)	gp120(174-184)	QKEYAFFYKLD	L P	IIIB gp120	murine($IgG_{2b,\kappa}$)

Donor: Tanox Biosystems Inc and David Ho, ADARC, NY

References: [Ho91, Ho92, McKeating92a, Moore93a, Sullivan93, Sattentau93, Thali93, Moore93b, Moore94b, Gorny et al.(1994), Thali94, Yoshiyama94, Wu95, Sattentau95a, Moore & Sodroski(1996), Poignard et al.(1996a)]

NOTES:

- G3-4: Binding is sensitive to removal of glycans by endo H – 50% neutralization of 4/9 primary isolates – has conformational features [Ho91]
- G3-4: Neutralizes IIIB and RF, not MN – blocks sCD4-gp120, not as potent as MAb 15e – V2 binding MAbs BAT085 and G3-136 block G3-4 gp120 binding – sensitive to reduction of gp120 by DTT [Ho92]
- G3-4: Substitutions in residues 176 to 184 affect MAb recognition – substitutions in V2 can result in gp120-gp41 dissociation [Sullivan93]
- G3-4: Increased binding in the presence of sCD4 [Sattentau93]
- G3-4: Conformational, does not bind well to denatured gp120 – not reactive with SF-2 gp120, and does not inhibit HIV-1 sera from binding to IIIB gp120 [Moore93a]
- G3-4: V2 region, marginal binding to peptide, binding inhibited by 183/184 PI/SG substitution [Moore93b]
- G3-4: Conformationally sensitive – sporadic cross-reactivity among, and outside, B clade gp120s [Moore94b]
- G3-4: Weakly neutralizing, IC_{50}
- G3-4: gp41 mutation (582 A/T) that reduces neutralization of anti-CD4 binding site MAbs doesn't alter G3-4s ability to neutralize [Thali94]
- G3-4: Neutralizes RF – substitutions 177 Y/H and 179 L/P in the V2 loop of RF reduce affinity and result in neutralization escape [Yoshiyama94]
- G3-4: Reactive with BH10, RF, and MN – binds native, but not denatured or deglycosylated gp120, binds to deglycosylated V1V2 fusion protein, suggesting importance of glycans outside the V1V2 region [Wu95]
- G3-4: Bound preferentially to the monomeric rather than oligomeric form of LAI gp120 – neutralizes Hx10 cell-free virus [Sattentau95a]
- G3-4: Binding enhanced by selected antibodies to C1, C4, C5, V3 and anti-CD4 binding site MAbs – enhances binding of selected V3, C4 and anti-CD4 binding site MAbs [Moore & Sodroski(1996)]
- G3-4: Described epitope as STSIRGKVKEYAFFYKLDI – binds oligomer – binding of V2 MAbs G3-136, G3-4 or BAT085 did not significantly alter gp120 dissociation from virus or expose the gp41 epitope of MAb 50-69, in contrast to anti-V3 MAbs [Poignard et al.(1996a)]

	MAb ID	Location	WEAU	Sequence	Neutralizing	Immunogen	Species(Isotype)
228	BAT085	gp120(V2 170-180 IIIB)	gp120(174-184)	KEYAFFYKLD	L	Inact IIIB	murine(IgG_1)

Donor: Tanox Biosystems Inc and David Ho, ADARC, NY

References: [Fung87, Fung92, Moore93a, Pirofski93, Thali93, Moore93b, D'Souza94, Moore94c, Gorny et al.(1994), Yoshiyama94, Wu95, Sattentau95a, Moore & Sodroski(1996), Poignard et al.(1996a)]

NOTES:

- BAT085: V2 region – sCD4 does not block – neutralizes IIIB and some primary isolates, but not MN or RF – binds MN – deglycosylation or DDT reduction of gp120 does not diminish reactivity [Fung92]
- BAT085: Called BAT-85 – conformational, does not bind well to denatured gp120 – not reactive with SF-2 gp120, and does not inhibit HIV-1 sera from binding to IIIB gp120 [Moore93a]
- BAT085: 7/8 V2 murine MAbs required gp120 native structure to bind, but BAT085 was the exception – type-specific [Moore93b]
- BAT085: Peptide affinities of G3-136 and G3-4 are 100-fold less than BAT085, but BAT085 has lower affinity for BH10 gp120 and is weaker at neutralization [Moore93b]
- BAT085: Multi-lab study for antibody characterization and assay comparison – did not bind MN or SF2 [D'Souza94]
- BAT085: Interacts with two overlapping peptides with region of overlap KEYAFFYKLD [Gorny et al.(1994)]
- BAT085: Neutralizes RF – substitution 177 Y/H in the V2 loop of RF does not inhibit neutralization, in contrast to MAbs G3-4 and SC258 [Yoshiyama94]
- BAT085: HXB10 strain specificity – binds native, deglycosylated, or dentured gp120 [Wu95]
- BAT085: Bound preferentially to the monomeric rather than oligomeric form of LAI gp120 – neutralizes cell free Hx10 [Sattentau95a]
- BAT085: Binding is blocked by other V2 region antibodies, enhanced by several anti-C1 MAbs, and anti-V3 MAb G511 – reciprocal enhancement of CD4i MAb 48d binding [Moore & Sodroski(1996)]
- BAT085: Epitope suggested to be QKEYAFFYKLD – binds oligomer – binding of V2 MAbs G3-136, G3-4 or BAT123 did not significantly alter gp120 dissociation from virus or expose the gp41 epitope of MAb 50-69, in contrast to anti-V3 MAbs [Poignard et al.(1996a)]

229	G3-136	gp120(V2 170-180 IIIB)	gp120(174-184)	QKEYAFFYKLD	L	purified IIIB gp120	murine(IgG)

Donor: Tanox Biosystems Inc and David Ho, ADARC, NY

References: [Fung92, Pirofski93, Thali93, Moore93a, Moore93b, Yoshiyama94, Sattentau95a, Moore & Sodroski(1996), Poignard et al.(1996a)]

NOTES:

- G3-136: V2 region – binds and neutralizes IIIB and RF in CEM-SS cells, but not MN – neutralization activity against a few primary isolates in PBMC – sCD4 binding inhibits binding (contrast with BAT085) – deglycosylation or reduction of gp120 by DTT diminishes reactivity [Fung92]
- G3-136: Conformational, does not bind well to denatured gp120 – not reactive with SF-2 gp120, and does not inhibit HIV-1 sera from binding to IIIB gp120 [Moore93a]
- G3-136: Marginal binding to peptide, binding inhibited by 183/184 PI/SG substitution [Moore93b]
- G3-136: Binding enhanced by selected antibodies to C1, C4, C5, V3 and anti-CD4 binding site MAbs – enhances binding of selected V3, C4 and anti-CD4 binding site MAbs [Moore93b]
- G3-136: HIV-1 RF V2 substitutions 177 Y/H and 179 L/P in the V2 loop of RF reduce affinity [Yoshiyama94]
- G3-136: Bound preferentially to the monomeric rather than oligomeric form of LAI gp120 – neutralizes cell free Hx10 [Sattentau95a]
- G3-136: Described epitope as STSIRGKVKEYAFFYKLDI – binds oligomer – binding of V2 MAbs G3-136, G3-4 or BAT123 did not significantly alter gp120 dissociation from virus or expose the gp41 epitope of MAb 50-69, in contrast to anti-V3 MAbs [Poignard et al.(1996a)]

230	38/12b	gp120(V2 172-191 HXB2)	gp120(176-195)	EYAFFYKLDIIPIDN-DTTSY	?	BH10 gp120	rat

References: [Wu95]

NOTES:

- 38/12b: Broad specificity: HXB2, MN, SF162 – binds native and deglycosylated gp120 [Wu95]

	MAb ID	Location	WEAU	Sequence	Neutralizing	Immunogen	Species(Isotype)
231	697-D	gp120(V2 161-180 IIIB)	gp120(165-184)	conformational with weak reactivity to ISTSIRGKVQKEYAF-FYKLD	P	HIV-1 infection	human($IgG_{1\lambda}$)

References: [Gorny et al.(1994), Forthal et al.(1995), Moore & Ho(1995), Trkola et al.(1996)]

NOTES:

- 697-D: Conformational with weak reactivity to V2 peptide ISTSIRGKVQKEYAFFYKLD – neutralized 3/4 primary isolates, but none of 4 lab strains – V2 substitutions 176/177 FY/AT, 179/180 LD/DL, 183/184 PI/SG, and 192-194 YSL/GSS abrogate binding – anti-C4 MAbs G3-536 and G45-60 enhance binding – mild oxidation of carbohydrate moieties inhibits binding [Gorny et al.(1994)]
- 697-D: Not neutralizing, no ADCC activity, and no viral enhancing activity [Forthal et al.(1995)]
- 697-D: Review: called 697/30D – neutralizes primary, but not lab adapted strains [Moore & Ho(1995)]
- 697-D: Partial inhibition of gp120 interaction with CCR-5 in a MIP-1β-CCR-5 competition study [Trkola et al.(1996)]

232	12b	gp120(V2 162-181)	gp120(166-185)	STSIRGKVQKEYAFF-YKLDI	L (HXB10)	BH10 rgp120	rat(IgG_{2a})

References: [Shotton95]

NOTES:

- 12b: V2 MAb neutralized HXB2 – position 179-180 LD to DL abrogates binding – competes with 60b, but not 74 [Shotton95]

233	38/60b	gp120(V2 172-191 HXB2)	gp120(176-195)	EYAFFYKLDIIPIDN-DTTSY	?	BH10 gp120	rat

References: [Wu95]

NOTES:

- 38/60b: Strain specificity: HXB2 – binds native and deglycosylated gp120 [Wu95]

234	60b	gp120(V2 172-181 HXB2)	gp120(176-185)	EYAFFYKLDI	N	BH10 rgp120	rat(IgG_{2b})

References: [Shotton95]

NOTES:

- 60b: V2 MAb did not neutralize HXB2 – bound to rgp120 in ELISA – substitutions 179-180 LD/DL and 191-193 YSL/GSS abrogate binding, as do changes outside the minimum epitope – competes with 12b, but not 74 [Shotton95]

235	74	gp120(V2 172-181)	gp120(176-185)	EYAFFYKLDI	N	BH10 rgp120	rat(IgG_1)

References: [Shotton95]

NOTES:

- 74: V2 MAb did not neutralize HXB2 – did not bind rgp120 ELISA – position 179-180 LD to DL abrogates binding, as do changes outside the minimum epitope – does not compete with 60b or 12b, and is enhanced by two conformation dependent MAbs [Shotton95]

236	3D3.B8	gp120(211-220 LAI)	gp120(215-225)	EPIPIHYCAPA	?	Env glycopro	murine(IgG)

References: [Bolmstedt92, Moore94a]

NOTES:

- 3D3.B8: The relative affinity denatured/native gp120 is greater than 10 [Moore94a]

237	4C11.D8	gp120(211-220 LAI)	gp120(215-225)	EPIPIHYCAPA	?	Env glycopro	murine(IgM)

References: [Bolmstedt92, Moore94a]

NOTES:

- 4C11.D8: The relative affinity denatured/native gp120 is greater than 10 [Moore94a]

	MAb ID	Location	WEAU	Sequence	Neutralizing	Immunogen	Species(Isotype)
238	322-151	gp120(201-220 LAI)	gp120(215-225)	EPIPIHYCAPA	?	Env glycopro	murine(IgG)

Donor: G. Robey, Abbot Labs

References: [Moore94a, Moore94c]

NOTES:

- 322-151: The relative affinity denatured/native gp120 is 30 [Moore94a]

239	493-156	gp120(211-230 LAI)	gp120(215-234)	EPIPIHYCAPAGFAI-LKCNN	?	Env glycopro	murine(IgG)

Donor: G. Robey, Abbot Labs

References: [Moore94a]

NOTES:

- 493-156: The relative affinity denatured/native gp120 is >10 [Moore94a]

240	J1	gp120(222-231 LAI)	gp120(226-235)	GFAILKCNNK	?	peptide	murine(IgG_1)

Donor: J. Hoxie, U. Penn.

References: [Moore94a, Moore94c, Cook et al.(1994)]

NOTES:

- J1: The relative affinity denatured/native gp120 is 30 [Moore94a]
- J1: MAbs against the glycosphingolipid GalCer block HIV infection of normally susceptible CD4 negative cells from the brain and colon – MAbs against the N-terminal half of gp120 do not inhibit gp120 binding to GalCer – binding of GalCer to gp120 does not inhibit MAb binding [Cook et al.(1994)]

241	J3	gp120(222-231 LAI)	gp120(226-235)	GFAILKCNNK	?	peptide	murine(IgG_1)

Donor: J. Hoxie, U. Penn.

References: [Moore94a, Cook et al.(1994)]

NOTES:

- J3: The relative affinity denatured/native gp120 is 30 [Moore94a]
- J3: MAbs against the glycosphingolipid GalCer block HIV infection of normally susceptible CD4 negative cells from the brain and colon – MAbs against the N-terminal half of gp120 do not inhibit gp120 binding to GalCer – binding of GalCer to gp120 does not inhibit MAb binding [Cook et al.(1994)]

242	MF87.1	gp120(242-261 LAI)	gp120(256-265)	RPVVSTQLLL	?	Env	murine(IgG)

References: [Thiriart89, Moore94a]

NOTES:

- MF87.1: The relative affinity denatured/native gp120 is 10 – mutations 252 R/W, 257 T/G, and 257 T/R impair binding [Moore94a]

243	MF169.1	gp120(242-261 LAI)	gp120(256-265)	RPVVSTQLLL	?	Env	murine(IgG)

References: [Thiriart89, Moore94a, Moore94c]

NOTES:

- MF169.1: The relative affinity denatured/native gp120 is 11 – mutations 252 R/W, 257 T/G, and 257 T/R impair binding [Moore94a]

244	MF170.1	gp120(242-261 LAI)	gp120(256-265)	RPVVSTQLLL	?	Env	murine(IgG)

References: [Thiriart89, Moore94a, Moore94c]

NOTES:

- MF170.1: The relative affinity denatured/native gp120 is 15 – mutations 252 R/W, 257 T/G, and 257 T/R impair binding to denatured and native gp120, and 262N/T, 269 E/L and 281 A/V to only native gp120 [Moore94a]

	MAb ID	Location	WEAU	Sequence	Neutralizing	Immunogen	Species(Isotype)
245	213.1	gp120(242-261 LAI)	gp120(256-265)	RPVVSTQLLL	?	Env glycopro	murine(IgG1)

Donor: Claudine Bruck

References: [Thiriart89, Moore93a, Moore94a]

NOTES:

- 213.1: Bound preferentially to denatured IIIB and SF2 gp120 [Moore93a]
- 213.1: The relative affinity denatured/native gp120 is 100 – mutations 252 R/W, 257 T/G or T/R impair binding [Moore94a]
- 213.1: UK Medical Research Council AIDS reagent: ARP334

246	M89	gp120(C2 252-271 LAI)	gp120(256-275)	RPVVSTQLLLNGSLA-EEEVV	N	451 Env	murine(IgG_1)

Donor: F. di Marzo Veronese

References: [Veronese92, Moore94a, Moore94c]

NOTES:

- M89: Immunoblot reactive, RIP negative, for strains IIIB, 451, MN, RF, and RUTZ [Veronese92]
- M89: C2 region – the relative affinity for denatured/native gp120 is $>$30 – mutations 257 T/R and 269 E/L impair binding [Moore94a]

247	B12	gp120(C2 252-271 LAI)	gp120(256-275)	RPVVSTQLLLNGSLA-EEEVV	?	mis-folded LAI rgp160	murine(IgG)

References: [Moore94a]

NOTES:

- B12: C2 region – the relative affinity for denatured/native gp120 is 27 – mutations 257 T/R and 262 N/T impair binding [Moore94a]

248	B13	gp120(C2 252-271 LAI)	gp120(256-275)	RPVVSTQLLLNGSLA-EEEVV	?	mis-folded LAI rgp160	murine(IgG_{2a})

Donor: George Lewis

References: [Moore93a, Moore94a, Abacioglu et al.(1994), Moore94c]

NOTES:

- B13: Bound preferentially to denatured IIIB gp120 [Moore93a]
- B13: the relative affinity for denatured/native gp120 is 30 – mutations 257 T/R and 269 E/L impair binding [Moore94a]
- B13: C2 region – epitope boundaries mapped by peptide scanning, core epitope: TQLLLN [Abacioglu et al.(1994)]

249	B24	gp120(C2 257-262 BH10)	gp120(261-266)	TQLLLN	?	mis-folded LAI rgp160	murine(IgG_{2a})

References: [Abacioglu et al.(1994)]

NOTES:

- B24: C2 region, epitope boundaries mapped by peptide scanning [Abacioglu et al.(1994)]

250	B3	gp120(C2 257-262 BH10)	gp120(261-266)	TQLLLN	?	mis-folded LAI rgp160	murine(IgG_1)

References: [Abacioglu et al.(1994)]

NOTES:

- B3: C2 region, epitope boundaries mapped by peptide scanning [Abacioglu et al.(1994)]

251	B21	gp120(C2 257-262 BH10)	gp120(261-266)	TQLLLN	?	mis-folded LAI rgp160	murine(IgG_1)

References: [Abacioglu et al.(1994)]

NOTES:

- B21: C2 region, epitope boundaries mapped by peptide scanning [Abacioglu et al.(1994)]

	MAb ID	Location	WEAU	Sequence	Neutralizing	Immunogen	Species(Isotype)
252	B23	gp120(C2 257-262 BH10)	gp120(261-266)	TQLLLN	?	mis-folded LAI rgp160	murine(IgG_{2a})

References: [Abacioglu et al.(1994)]

NOTES:

- B23: C2 region, epitope boundaries mapped by peptide scanning [Abacioglu et al.(1994)]

253	B25	gp120(C2 257-262 BH10)	gp120(261-266)	TQLLLN	?	mis-folded LAI rgp160	murine(IgG_1)

References: [Abacioglu et al.(1994)]

NOTES:

- B25: C2 region, epitope boundaries mapped by peptide scanning [Abacioglu et al.(1994)]

254	B29	gp120(C2 257-263 BH10)	gp120(261-267)	TQLLLNG	?	mis-folded LAI rgp160	murine(IgG_{2a})

References: [Abacioglu et al.(1994)]

NOTES:

- B29: C2 region, epitope boundaries mapped by peptide scanning [Abacioglu et al.(1994)]

255	B26	gp120(C2 257-263 BH10)	gp120(261-267)	TQLLLNG	?	mis-folded LAI rgp160	murine(IgG_1)

References: [Abacioglu et al.(1994)]

NOTES:

- B26: C2 region, epitope boundaries mapped by peptide scanning [Abacioglu et al.(1994)]

256	B36	gp120(C2 257-263 BH10)	gp120(261-267)	TQLLLNG	?	mis-folded LAI rgp160	murine(IgG_1)

References: [Abacioglu et al.(1994)]

NOTES:

- B36: C2 region, epitope boundaries mapped by peptide scanning [Abacioglu et al.(1994)]

257	C13	gp120(C2 252-271 LAI)	gp120(256-275)	RPVVSTQLLLNGSLA-EEEVV	?	mis-folded LAI rgp160	murine(IgG_1)

Donor: George Lewis

References: [Moore93a, Moore94a, Abacioglu et al.(1994)]

NOTES:

- C13: Bound preferentially to denatured IIIB gp120 [Moore93a]
- C13: The relative affinity for denatured/native gp120 is 36 – mutations 257 T/R, 267 E/L, and 269 E/L impair binding [Moore94a]
- C13: epitope boundary extended to RPVVSTQLLLNGSLAEEEVVIR, to take into account the effect of a point mutation [Abacioglu et al.(1994)]
- C13: NIH AIDS Research and Reference Reagent Program: 1209

258	110.E	gp120(C2 262-281 LAI)	gp120(265-285)	NGSLAEEEVVIRSVN-FTDNA	?	Env glycopro	murine(IgG)

Donor: F. Traincard

References: [Moore94a, Moore94c]

NOTES:

- 110.E: The relative affinity for denatured/native gp120 is 7.3 [Moore94a]

	MAb ID	Location	WEAU	Sequence	Neutralizing	Immunogen	Species(Isotype)
259	110.C	gp120(C2 261-280 LAI)	gp120(275-284)	VIRSVNFTDN	?	Env glycopro	murine(IgG)

Donor: F. Traincard, Hydridolabs, Institut Pasteur

References: [Moore94a, Moore94c]

NOTES:

- 110.C: The relative affinity for denatured/native gp120 is 1 [Moore94a]

260	IIIB-V3-21	gp120(V3 299-304 IIIB)	gp120(298-303)	INCTRP	N	Peptide	murine(IgG_1)

References: [Laman92, Laman et al.(1993)]

NOTES:

- IIIB-V3-21: Binds to the base of the V3 loop on denatured gp120 [Laman92]
- IIIB-V3-21: Binds to NP40 treated gp120, and epitope is probably obscured by local glycosylation [Laman et al.(1993)]
- IIIB-V3-21: UK Medical Research Council AIDS reagent: ARP3048
- IIIB-V3-21: NIH AIDS Research and Reference Reagent Program: 1725

261	IIIB-V3-26	gp120(V3 299-304 IIIB)	gp120(295-311)	SVEINCTRPNNNTRK-SI	N	Peptide	murine(IgG_1)

References: [Laman92]

NOTES:

- IIIB-V3-26: Binds to the base of the V3 loop on denatured gp120 [Laman92]

262	MO97/V3	gp120(V3 299-308 IIIB)	gp120(303-312)	PNNNTRKSIR	N	rpB1 (IIIB Env 286-467)	human(IgM)

References: [Ohlin92]

NOTES:

- MO97: Generated through *in vitro* "immunization" of uninfected-donor lymphocytes [Ohlin92]

263	8/38c	gp120(V3 300-315 HXB10)	gp120(304-317)	NNNTRKRIRIQRGPG-R	L	rBH10 gp120	rat(IgG_{2a})

Donor: C. Dean and C. Shotton, Institute for Cancer Research, Surrey, UK

References: [McKeating92a, Sattentau95a]

NOTES:

- 8/38c: Binds to virion gp120 and neutralizes only in the presence of sCD4 [McKeating92a]
- 8/38c: Binds equally well to monomer and oligomer, less rapid association rate than other anti-V3 antibodies, and an associated less potent neutralization of lab strains [Sattentau95a]
- 8/38c: UK Medical Research Council AIDS reagent: ARP3039

264	8/64b	gp120(V3 300-315 HXB10)	gp120(304-317)	NNNTRKRIRIQRGPG-R	L	rBH10 gp120	rat(IgM)

References: [McKeating92a]

NOTES:

- 8/64b: Binds to virion gp120 and neutralizes only in the presence of sCD4 [McKeating92a]
- 8/64b: UK Medical Research Council AIDS reagent: ARP3036

	MAb ID	Location	WEAU	Sequence	Neutralizing	Immunogen	Species(Isotype)
265	polyclonal	gp120(V3 IIIB)	gp120(305-328)	NNTRKSIRIQRGPGR-AFVTIGKIGN	L	oral immunization – peptide plus cholera toxin adjuvant	murine(IgA)

References: [Bukawa et al.(1995)]

NOTES:

- polyclonal: Polyclonal secretory IgA antibody raised by mucosal immunization is able to neutralize IIIB, SF2, and MN – HIV-1 neutralization may be due to V3, CD4 or HPG30 component of the multicomponent peptide immunogen [Bukawa et al.(1995)]

266	polyclonal	gp120(V3 IIIB)	gp120(305-325)	CNNTRKSIRIQRGPG-RAFVTIGK	L	?	Guinea pig IgG

Donor: D. Bolognesi and T. Matthews, Duke University

References: [Allaway et al.(1993)]

NOTES:

- polyclonal: Synergy with combinations of CD4-based molecules in inhibition of HIV-1 Env mediated cell fusion [Allaway et al.(1993)]

267	MO99/V3	gp120(V3 304-308 IIIB)	gp120(308-312)	RKSIR	N	rpB1 (IIIB Env 286-467)	human(IgM)

References: [Ohlin92]

NOTES:

- MO99: Generated through *in vitro* "immunization" of uninfected-donor lymphocytes [Ohlin92]

268	F19.48-3	gp120(V3 312-324 LAI)	gp120(309-321)	IRIQRGPGRAFVT	L	IIIB rgp120 294-474	murine($IgG_{2a\kappa}$)

References: [Boudet et al.(1994)]

NOTES:

- F19.48-3: Strain specific – used to raise anti-idiotype antibodies [Boudet et al.(1994)]

269	F19.26-4	gp120(V3 312-324 LAI)	gp120(309-321)	IRIQRGPGRAFVT	L	IIIB rgp120 294-474	murine($IgG_{2a\kappa}$)

References: [Boudet et al.(1994)]

NOTES:

- F19.26-4: Strain specific – used to raise anti-idiotype antibodies [Boudet et al.(1994)]

270	F19.57-11	gp120(V3 312-324 LAI)	gp120(309-321)	IRIQRGPGRAFVT	L	IIIB rgp120 294-474	murine($IgG_{1\kappa}$

References: [Boudet et al.(1994)]

NOTES:

- F19.57-11: Strain specific – used to raise anti-idiotype antibodies [Boudet et al.(1994)]

271	MO96/V3	gp120(309-318 + 329-338)	gp120	IQRGPGRAFV + AHCNISRAKW	?	rIIIB Env 286-467	human(IgM)

References: [Ohlin92]

NOTES:

- MO96: Generated through *in vitro* "immunization" of uninfected-donor lymphocytes [Ohlin92]

	MAb ID	Location	WEAU	Sequence	Neutralizing	Immunogen	Species(Isotype)
272	MO101/V3, C4	gp120(314-323 + 494-503)	gp120	GRAFVTIGKI + LGVAPTKAKR	?	rIIIB Env 286-467	human(IgM)

References: [Ohlin92]

NOTES:

- MO101: Generated through *in vitro* "immunization" of uninfected-donor lymphocytes – reacts with peptides from the V3 and C4 regions [Ohlin92]

273	N70-1.9b	gp120(V3 316-322)	gp120(315-320)	PGRAFY	L P	HIV-1 infection	human(IgG_1)

References: [Robinson et al.(1990), Scott90]

NOTES:

- N70-1.9b: Type specificity [Robinson et al.(1990)]
- N70-1.9b: Type specific neutralization, ADCC directed against MN infected cells [Scott90]

274	MAG 49	gp120(V3 302-321 BH10)	gp120(306-323)	NTRKSIRIQRGPGRA-FVTIG	L	sCD4-(rHXB2 gp120)-complex	murine

References: [Kang94, Moore & Sodroski(1996)]

NOTES:

- MAG 49: Binds a V3 loop peptide – sensitive to both V3 loop mutations and a mutation at the base of the V1/V2 loop structure (120/121 VK/LE) [Kang94]
- MAG 49: Called #49 in this text. Binding enhanced by anti-C1 MAbs 133/290, 135/9, and by many anti-CD4 binding site MAbs – reciprocal enhancement of some anti-V2 MAbs – reciprocal binding inhibition of anti-V3 MAbs [Moore & Sodroski(1996)]

275	MAG 53	gp120(V3 302-321 BH10)	gp120(306-323)	NTRKSIRIQRGPGRA-FVTIG	L	sCD4-(rHXB2 gp120)-complex	murine

References: [Kang94]

NOTES:

- MAG 53: Binds a V3 loop peptide – sensitive to both V3 loop mutations and a mutation at the base of the V1/V2 loop structure (120/121 VK/LE) [Kang94]

276	MAG 56	gp120(V3 302-321 BH10)	gp120(306-323)	NTRKSIRIQRGPGRA-FVTIG	L	sCD4-(rHXB2 gp120)-complex	murine

References: [Kang94]

NOTES:

- MAG 56: Binds a V3 loop peptide – sensitive to both V3 loop mutations and a mutation at the base of the V1/V2 loop structure (120/121 VK/LE) [Kang94]

277	MAG 109	gp120(V3 302-321 BH10)	gp120(306-323)	NTRKSIRIQRGPGRA-FVTIG	L	sCD4-(rHXB2 gp120)-complex	murine

References: [Kang94]

NOTES:

- MAG 109: Binds a V3 loop peptide – sensitive to both V3 loop mutations and a mutation at the base of the V1/V2 loop structure (120/121 VK/LE) [Kang94]

278	polyclonal	gp120(V3 306-338 BH10)	gp120(303-334)	PNNNTRKSIRIQRGP-GRAFVTIGKIGNMRQ-AHC	L	Peptide	rabbit(IgG)

References: [Neurath90]

NOTES:

- polyclonal: 21 V3 loop variant peptides spanning this region were tested and serological cross-reactivity correlated with divergence [Neurath90]

	MAb ID	Location	WEAU	Sequence	Neutralizing	Immunogen	Species(Isotype)
279	9284	gp120(V3 307-318 IIIB)	gp120(305-316)	NNTRKSIRIQRG	L	disrupted IIIB virion	murine(IgG_1)

Donor: Dupont de Nemours, Les Ulis, France or Wilmington Delaware

References: [Skinner88, Skinner88a, Sattentau91, Wyatt92, McKeating92a, Sattentau93, Moore93c, Trujillo et al.(1993), Thali93, VanCott et al.(1994), Thali94, Cook et al.(1994), Okada94, Sorensen et al.(1994), Sattentau95a, Moore & Sodroski(1996), Poignard et al.(1996a)]

NOTES:

- 9284: IIIB type-specific binding and neutralization [Skinner88]
- 9284: Two fold increase in binding to gp120 in the presence of bound sCD4 [Sattentau91]
- 9284: Single amino acid substitutions in the C4 region (427 W/V or W/S) or at the base of the V3 loop (298 R/G) can significantly increase binding and neutralization– position 427 is also important for CD4 binding and anti-CD4 binding site MAbs [Wyatt92]
- 9284: Increased binding in the presence of sCD4 [Sattentau93]
- 9284: Inhibits C4 region antibodies (G3-299, G3-519) which have conformational requirements [Moore93c]
- 9284: Peptide RIQRGPGRAFVTIGKIGNMRQA – Reacts with three human brain proteins of 35, 55, 110 kDa – called NEA-9284 [Trujillo et al.(1993)]
- 9284: Does not bind MN gp120, just IIIB [VanCott et al.(1994)]
- 9284: gp41 mutation that confers resistance to neutralization by anti-CD4 binding site antibodies does not reduce neutralizing efficiency of this V3 region MAb [Thali94]
- 9284: MAbs against the glycosphingolipid GalCer block HIV infection of normally susceptible CD4 negative cells from the brain and colon – this MAb can inhibit gp120 binding to GalCer *in vitro* [Cook et al.(1994)]
- 9284: Binding domain aa 301-310: TRKSIRIQRG – mutations in the V3 loop from basic residues can destroy virus infectivity and syncytium formation: 306 R/T,309 R/T and 313 R/G can also reduce binding of V3 MAbs with two different binding sites: 9284 and 0.5β – called NEA9284 [Okada94]
- 9284: Did not neutralize infection of HIV/HTLV-I pseudotype [Sorensen et al.(1994)]
- 9284: Binds equally well to monomer and oligomer, rapid association and potent neutralization of lab strains – neutralizes cell-free virus Hx10 [Sattentau95a]
- 9284: Binds V3 loop – anti-C1 MAbs 133/290 and 135/9 enhance binding – reciprocal binding inhibition of other anti-V3 MAbs [Moore & Sodroski(1996)]
- 9284: V3 MAbs 9284, BAT123, 110.5, and 110.I could each significantly increase gp120 dissociation from virus, mimicking sCD4, and expose the gp41 epitope for MAb 50-69, in contrast to anti-V2 MAbs [Poignard et al.(1996a)]

280	1026	gp120(V3 tip MN)	gp120(314-319)	close to GPGRAF ?	L	rgp120 MN	murine(IgG)

References: [Nakamura93, Bou-Habib94]

NOTES:

- 1026: Bound diverse strains, neutralizing activity against MN [Nakamura93]
- 1026: Greater affinity for T cell-tropic strain T-CSF, derived from JR-CSF, than to the primary isolate JR-CSF [Bou-Habib94]

281	1034	gp120(V3 tip MN)	gp120(314-319)	close to GPGRAF ?	L	rgp120 MN	murine(IgG)

References: [Bou-Habib94]

NOTES:

- 1034: Greater affinity for T cell tropic T-CSF, derived from JR-CSF, than to the primary isolate JR-CSF [Bou-Habib94]

282	polyclonal	gp120(V3 304-318 LAI)	gp120(306-320)	RKSIRIQRGPGRAFV	?	?	human(IgG, IgM)

References: [Chin95]

NOTES:

- polyclonal: Mimicking the humoral immune response *in vitro* supports isotype switching – human IgG MAbs were generated from naive donors [Chin95]

	MAb ID	Location	WEAU	Sequence	Neutralizing	Immunogen	Species(Isotype)
283	Aw	gp120(V3 tip, Gun-1wt)	gp120(309-322)	KSITIGPGRAFHAI	L	V3 peptide	rat

References: [McKnight et al.(1995)]

NOTES:

- Aw: Rat antibodies were raised against V3 peptides that represent either the wildtype (wt), or brain-cell tropic variant (v) of the isolate Gun-1 – Aw gives weak neutralization both wt and v strains [McKnight et al.(1995)]

284	Bw	gp120(V3 tip, Gun-1wt)	gp120(309-322)	KSITIGPGRAFHAI	L	V3 peptide	rat

References: [McKnight et al.(1995)]

NOTES:

- Bw: Rat antibodies were raised against V3 peptides that represent either the wildtype (wt), or brain-cell tropic variant (v) of the isolate Gun-1 – Bw gives weak neutralization of only the wt strain, does not bind to variant [McKnight et al.(1995)]

285	Dv	gp120(V3 tip, Gun-1v)	gp120(309-322)	KSITIGSGRAFHAI	L	V3 peptide	rat

References: [McKnight et al.(1995)]

NOTES:

- Dv: Rat antibodies were raised against V3 peptides that represent either the wildtype (wt), or brain-cell tropic variant (v) of the isolate Gun-1 – neutralization of only the variant strain, does not bind to wildtype [McKnight et al.(1995)]

286	Fv	gp120(V3 tip, Gun-1v)	gp120(309-322)	KSITIGSGRAFHAI	L	V3 peptide	rat

References: [McKnight et al.(1995)]

NOTES:

- Fv: Rat antibodies were raised against V3 peptides that represent either the wildtype (wt), or brain-cell tropic variant (v) of the isolate Gun-1 – neutralization of only the variant strain, does not bind to wildtype [McKnight et al.(1995)]

287	Gv	gp120(V3 tip, Gun-1v)	gp120(309-322)	KSITIGSGRAFHAI	L	V3 peptide	rat

References: [McKnight et al.(1995)]

NOTES:

- Gv: Rat antibodies were raised against V3 peptides that represent either the wildtype (wt), or brain-cell tropic variant (v) of the isolate Gun-1 – neutralization of only the variant strain, does not bind to wildtype [McKnight et al.(1995)]

288	Hv	gp120(V3 tip, Gun-1v)	gp120(309-322)	KSITIGSGRAFHAI	L	V3 peptide	rat

References: [McKnight et al.(1995)]

NOTES:

- Hv: Rat antibodies were raised against V3 peptides that represent either the wildtype (wt), or brain-cell tropic variant (v) of the isolate Gun-1 – neutralization of only the variant strain, does not bind to wildtype [McKnight et al.(1995)]

289	polyclonal	gp120(V3 304-318 LAI)	gp120(310-321)	RIHIGPGRAFYT	?	?	human(IgG, IgM)

References: [Langedijk et al.(1995)]

NOTES:

- polyclonal: Polylconal sera from six individuals tested for reactivity against a panel of peptides based on autologous sequences provide evidence for immunological escape mutations in the tip of the V3 loop [Langedijk et al.(1995)]

290	C311E	gp120 (V3 309-316 MN)	gp120(308-315)	RKRIHIGP	L	IIIB infection	chimpanzee

References: [Warrier96]

NOTES:

- C311E: Synergistic neutralization of HIV-1 when combined with anti-V2 MAb C108G [Warrier96]

	MAb ID	Location	WEAU	Sequence	Neutralizing	Immunogen	Species(Isotype)
291	5G11	gp120(V3 loop)	gp120	?	?	?	?

Donor: S. Nigida and L. Arthur, NCI, Frederick, MD USA

References: [Moore & Sodroski(1996)]

NOTES:

- 5G11: Binds to conformation sensitive epitope in the V3 loop – reciprocal inhibition of other V3 loop MAbs – reciprocal enhancement of some C1-C5 MAbs (unusual for an anti-V3 MAb) and CD4 binding site MAbs – and enhances binding of V2 MAbs [Moore & Sodroski(1996)]

292	110.3	gp120(V3 308-328 BRU)	gp120(312-319)	QRGPGRAF	L	BRU infected cell lysates	murine($IgG_{1\kappa}$)

References: [Thomas88, Evans89, Langedijk92, Pirofski93, Connelly et al.(1994)]

NOTES:

- 110.3: Included as a control [Evans89]
- 110.3: MAb variable region sequenced – heavy chain: V 7138(40), D deletion, J_H4 – light chain: $V_\kappa21(47)$, $J_\kappa2$ [Pirofski93]
- 110.3: An anti-idiotypic MAb generated against 110.3 both mimics and binds to V3, suggesting that the V3 loop may associated with itself [Connelly et al.(1994)]

293	110.4	gp120(V3 308-328 BRU)	gp120(312-319)	QRGPGRAF	L	BRU infected cell lysates	murine($IgG_{1\kappa}$)

Donor: Genetic Systems Corp, Seattle WA, E. Kinney-Thomas

References: [Thomas88, Thali92b, Langedijk92, Thali93, Pirofski93, Thali94, Boudet et al.(1994), Connelly et al.(1994), McDougal96]

NOTES:

- 110.4: 313 P/S substitution in the V3 region disrupts binding [Thali92b]
- 110.4: MAb variable region sequenced – heavy chain: V 3660-SB32, D closest to DSP2.3, 2.4 and .6, J_H2 – light chain: $V_\kappa21$, $J_\kappa2$ [Pirofski93]
- 110.4: gp41 mutation that confers resistance to neutralization by anti-CD4 binding site antibodies does not reduce neutralizing efficiency of this V3 region MAb [Thali94]
- 110.4: An anti-idiotypic MAb generated against 110.3 also blocks binding of 110.4 [Connelly et al.(1994)]
- 110.4: Neutralizes HIV-1 LAI [McDougal96]

	MAb ID	Location	WEAU	Sequence	Neutralizing	Immunogen	Species(Isotype)
294	110.5	gp120(V3 308-328 BRU)	gp120(312-319)	QRGPGRAF	L	BRU infected cell lysates	murine($IgG_{1\kappa}$)

Donor: E. Kinney-Thomas or Genetic Systems, Seattle WA

References: [Thomas88, Moore et al.(1990), Cordell91, Sattentau91, Langedijk92, McKeating92a, Pirofski93, Moore93c, Thali93, Klasse et al.(1993a), Sattentau95, Sattentau95a, Moore & Sodroski(1996), Poignard et al.(1996a), McDougal96]

NOTES:

- 110.5: Did not induce dissociation of gp120, as sCD4 did – discrepancy with [Poignard et al.(1996a)], that was suggested to be due to MAb interference with detection, as the gp120-MAb complex was denatured in the Poignard study [Moore et al.(1990)]
- 110.5: Binding insensitive to gp120 reduction [Cordell91]
- 110.5: Two fold increase in binding to gp120 in the presence of bound sCD4 [Sattentau91]
- 110.5: Variable region sequenced – heavy chain: V 3660-SB32, D closest to DSP2.3, 2.4 and .6, J_H2 – light chain: $V_\kappa21$, $J_\kappa2$ [Pirofski93]
- 110.5: Thrombin cleavage of V3 loop between R-315 and A-316 abrogates binding – can inhibit C4 region antibody which has conformational requirements (G3-299) – binding to native gp120 100-300 fold greater than to denatured [Moore93c]
- 110.5: The gp41 mutation 582(Ala to Thr) results in conformational changes in gp120 that confer neutralization resistance to conformationally sensitive neutralizing MAbs – neutralization efficiency of 110.5 is not affected [Reitz Jr. et al.(1988), Klasse et al.(1993a)]
- 110.5: Pretreatment of HX10-infected H9 cells with sCD4 decreases signal from 110.5 at 37 degrees due to dissociation of gp120-gp41 [Sattentau95]
- 110.5: Binds with high affinity to monomer and oligomer, rapid association and potent neutralization of lab strains – neutralizes cell-free Hx10 [Sattentau95a]
- 110.5: Reciprocal binding inhibition with other anti-V3 MAbs – enhances binding of some anti-V2 MAbs – binding enhanced by some CD4 binding site MAbs [Moore & Sodroski(1996)]
- 110.5: V3 MAbs 9284, BAT123, 110.5, and 110.I could each significantly increase gp120 dissociation from virus, mimicking sCD4, and expose the gp41 epitope for MAb 50-69, in contrast to anti-V2 MAbs [Poignard et al.(1996a)]
- 110.5: Neutralizes HIV-1 LAI [McDougal96]

295	5023A	gp120(V3 311-317 BH10)	gp120(313-319)	RgPGRAF	L	15 mer synthetic BH10 V3 peptide	murine(IgG)

Donor: Paul Durda, Du Pont de Nemours and Co

References: [Langedijk et al.(1991), D'Souza91, Back et al.(1993)]

NOTES:

- 5023A: Generation and Fine mapping of murine MAbs [Langedijk et al.(1991)]
- 5023A: This paper refers to MAb 5023A as 5023 – Langedijk also has an MAb called 5023B – strong cross-reactive neutralizing MAb [D'Souza91]
- 5023A: This paper refers to MAb 5023A as 5023 – Langedijk also has an MAb called 5023B – gp41 amino acid substitutions 668 (N/S) and 675 (I/M) in gp41 interfere with 5023s neutralization potency, region 662-675 is ELDKWANLWNWFNI [Back et al.(1993)]

296	178.1	gp120(V3 305-309 BH10)	gp120(309-313)	KSiRI	L	yeast rgp160 IIIB	murine(IgG_{2a})

Donor: C. Thiriart, Smith Kline and MRC AIDS reagent project

References: [Thiriart89, Back et al.(1993), Moore93a, Cook et al.(1994)]

NOTES:

- 178.1: reacts to gp120 and gp160 in RIPA EIA and immunoblot [Thiriart89]
- 178.1: Called 178.1.1 – conformational, does not bind well to denatured gp120 [Moore93a]
- 178.1: gp41 amino acid substitutions 668 (N/S) and 675 (I/M) in gp41 interfere with 5023s neutralization potency, region 662-675 is ELDKWANLWNWFNI [Back et al.(1993)]
- 178.1: MAbs against the glycosphingolipid GalCer block HIV infection of normally susceptible CD4 negative cells from the brain and colon – this MAb can inhibit gp120 binding to GalCer *in vitro* – binding of GalCer to gp120 inhibited but did not completely block MAb binding[Cook et al.(1994)]
- 178.1: UK Medical Research Council AIDS reagent: ARP331

HIV Monoclonal Antibodies

	MAb ID	Location	WEAU	Sequence	Neutralizing	Immunogen	Species(Isotype)
297	5042A	gp120(V3 310-315 BH10)	gp120(312-317)	QrGPGR	L	15 mer synthetic BH10 V3 peptide	murine(IgG)

References: [Langedijk et al.(1991)]

NOTES:

- 5042A: Generation and fine mapping of murine MAbs [Langedijk et al.(1991)]

298	5025A	gp120(V3 313-317 BH10)	gp120(315-319)	pgRAF	L	15 mer synthetic BH10 V3 peptide	murine(IgG)

Donor: Paul Durda, Du Pont de Nemours and Co

References: [Langedijk et al.(1991), D'Souza91]

NOTES:

- 5025A: Generation and fine mapping of murine MAbs [Langedijk et al.(1991)]
- 5025A: 5025: Called 5025 – strain specific weakly neutralizing [D'Souza91]

299	5020	gp120(V3 311-316 BH10)	gp120(313-318)	RGPGRA	N	15 mer synthetic BH10 V3 peptide	murine(IgG)

References: [Langedijk et al.(1991)]

NOTES:

- 5020: Generation and fine mapping of murine MAbs [Langedijk et al.(1991)]

300	5042B	gp120(V3 310-315 BH10)	gp120(312-317)	QRGPGr	N	15 mer synthetic BH10 V3 peptide	murine(IgG)

References: [Langedijk et al.(1991)]

NOTES:

- 5042B: Generation and fine mapping of murine MAbs [Langedijk et al.(1991)]

301	5025B	gp120(V3 310-316 BH10)	gp120(312-318)	QRGPGra	N	15 mer synthetic BH10 V3 peptide	murine(IgG)

References: [Langedijk et al.(1991)]

NOTES:

- 5025B: Generation and fine mapping of murine MAbs [Langedijk et al.(1991)]

302	5023B	gp120(V3 309-316 BH10)	gp120(311-318)	IQRGPGra	N	15 mer synthetic BH10 V3 peptide	murine(IgG)

References: [Langedijk et al.(1991)]

NOTES:

- 5023B: Generation and fine mapping of murine MAbs [Langedijk et al.(1991)]

	MAb ID	Location	WEAU	Sequence	Neutralizing	Immunogen	Species(Isotype)
303	110.I	gp120(V3 316-322)	gp120(318-324)	AFVTIGK	L	recombinant gp120	murine

Donor: F. Traincard, Pasteur Institute, France

References: [Moore93c, Moore94a, Sattentau95a, Moore & Sodroski(1996), Poignard et al.(1996a)]

NOTES:

- 110.I: Binds to carboxy-terminal side of the V3 loop – inhibits binding of C4 region MAb G3-299 [Moore93c]
- 110.I: Binds equally well to monomer and oligomer, rapid association and potent neutralization of lab strains [Sattentau95a]
- 110.I: Reciprocal binding inhibition with other anti-V3 and anti-C4 MAbs – and enhances binding of some anti-V2 MAbs – binding enhanced by some anti-CD4 binding site MAbs [Moore & Sodroski(1996)]
- 110.I: Epitope suggested to be RAFVTIGK – V3 MAbs 9284, BAT123, 110.5, and 110.I could each significantly increase gp120 dissociation from virus, mimicking sCD4, and expose the gp41 epitope for MAb 50-69, in contrast to anti-V2 MAbs [Poignard et al.(1996a)]

304	110.J	gp120(V3 loop)	gp120	?	?	?	?

Donor: F. Traincard, Pasteur Institute, France

References: [Thali93, Moore & Sodroski(1996)]

NOTES:

- 110.J: Inhibits sCD4-inducible anti-CD4 binding site MAb 48d [Thali93]
- 110.J: Binds to carboxy-terminal side of the V3 loop – reciprocal binding inhibition with other anti-V3 and anti-C4 MAbs – and reciprocal enhanced binding of some anti-V2 MAbs and anti-CD4 binding site MAbs [Moore & Sodroski(1996)]

305	G3-1472	gp120(V3 loop)	gp120	?	?	?	?

Donor: M. Fung

References: [Moore & Sodroski(1996)]

NOTES:

- G3-1472: Binds to carboxy-terminal side of the V3 loop – reciprocal binding inhibition with other anti-V3 and anti-C4 MAbs – reciprocal enhanced binding of some anti-V2 MAbs and anti-CD4 binding site MAbs – binding inhibited by anti-C4 MAbs [Moore & Sodroski(1996)]

306	AG1121	gp120(V3 loop)	gp120	?	L	?	?

Donor: AGMED, Inc, Bedford MA, commercial

References: [Sullivan et al.(1995)]

NOTES:

- AG1121: Recognizes monomeric gp120 from T-cell adapted line HXBc2 and primary isolate 89.6 equally well, but 89.6 was three-fold less sensitive to neutralization by AG1121 than HXBc2 [Sullivan et al.(1995)]

307	110.6	gp120(V3 BRU)	gp120(313-320)	RGPGRAFV	L(weak)	BRU infected cell lysates	murine($IgG_{1\lambda}$)

References: [Thomas88, Pirofski93, Langedijk92]

NOTES:

- 110.6: Variable region sequenced – heavy chain: V J558-146b.1α, D closest to DSP16.2, J_H3 – light chain: $V_\lambda1$, $J_\lambda1$ [Pirofski93]

	MAb ID	Location	WEAU	Sequence	Neutralizing	Immunogen	Species(Isotype)
308	BAT123	gp120(V3 308-322 HXB2)	gp120(308-324)	RIRIQRGPGRAFVTI-GK	L	Inact IIIB	murine($IgG_{1\kappa}$)

Donor: Tanox Biosystems Inc and David Ho, ADARC, NY

References: [Fung87, Liou89, Fung90, Moore93a, Safrit93, Thali93, Pirofski93, Sattentau95a, Poignard et al.(1996a)]

NOTES:

- BAT123: Anti-idiotypic MAb, AB19-4i, stimulates anti-anti-ID which neutralizes MN and IIIB [Fung90]
- BAT123: Called BAT-123 – conformational, does not bind well to denatured gp120 – not reactive with SF-2 gp120 – does not inhibit HIV-1 sera from binding to IIIB gp120 [Moore93a]
- BAT123: Passive transfer to Hu-PBS-SCID mice confers protection against challenge with homologous cell-free virus [Safrit93]
- BAT123: Variable region sequenced – heavy chain: V 3660-SB32, D unknown, J_H3 – light chain: $V_\kappa21$, $J_\kappa2$ [Pirofski93]
- BAT123: Binds with high affinity to monomer and oligomer, rapid association and potent neutralization of lab strain [Sattentau95a]
- BAT123: Epitope described as RGPGRAFVTIGK – V3 MAbs 9284, BAT123, 110.5, and 110.I could each significantly increase gp120 dissociation from virus (BAT123 less so than the others), mimicking sCD4, and expose the gp41 epitope for MAb 50-69, in contrast to anti-V2 MAbs [Poignard et al.(1996a)]

309	CGP 47 439	gp120(V3 tip)	gp120(308-324)	?	L	IIIB gp120	BAT123-human Ig chimera

References: [Liou89, Safrit93]

NOTES:

- CGP 47 439: passive transfer to Hu-PBS-SCID mice confers protection against challenge with homologous cell-free virus – BAT123-human Ig chimera [Safrit93]

310	10F10	gp120(V3 MN)	gp120(308-322)	RKRIHIGPGRAFYTT	L	Peptide	murine(IgG_1)

References: [Duarte94]

NOTES:

- 10F10: 2C4: Putative epitope lies within IHIGPGRAFYT – generated by multi-epitope polypeptide immunization – recognize MN and SC (TRSIHIGPGRAFYTT) peptides, lower affinity for SF2 [Duarte94]

311	2C4	gp120(V3 MN)	gp120(308-322)	RKRIHIGPGRAFYTT	L(MN)	Peptide	murine(IgG_{2a})

References: [Duarte94]

NOTES:

- 2C4: Putative epitope lies within IHIGPGRAFYT – neutralizes MN, not IIIB and SF2 – generated by multi-epitope polypeptide immunization – recognize MN and SC (TRSIHIGPGRAFYTT) peptides, lower affinity for SF2 [Duarte94]

MAb ID	Location	WEAU	Sequence	Neutralizing	Immunogen	Species(Isotype)
312 19b	gp120(V3)	gp120(310-322)	-I----G--FY-T	L P	HIV-1 infection	human(IgG)

References: [Scott90, Moore94b, Moore94d, Moore95a, Moore95b, Moore & Ho(1995), Gauduin et al.(1996), Wu et al.(1996), Trkola et al.(1996)]

NOTES:

- 19b: V3 loop binding MAb that is more broadly clade cross-reactive than most (binds to 19/29 clade B and 10/12 clade E gp120s) [Moore94b]
- 19b: Competition studies with human sera from seroconverting individuals showed that anti-CD4 BS antibodies can arise very early in infection, comparable or prior to anti-V3 antibodies [Moore94d]
- 19b: binds to some gp120s from clades A,B,C,E, and F – weakly neutralized some B and one C clade virus [Moore95a]
- 19b: Despite broad gp120 binding reactivity, not broadly neutralizing [Moore95b]
- 19b: Review: more broadly cross-reactive than anti-V3 tip MAb 447-D [Moore & Ho(1995)]
- 19b: Not as effective as IgG1b12 at neutralization *ex vivo* of virus direct from plasma of HIV-1 infected individuals [Gauduin et al.(1996)]
- 19b: MIP-1α binding to CCR-5 expressing cells can be inhibited by gp120-sCD4 – binding of 19b blocks this inhibition [Wu et al.(1996)]
- 19b: Inhibits gp120 interaction with CCR-5 in a MIP-1β-CCR-5 competition study [Trkola et al.(1996)]

MAb ID	Location	WEAU	Sequence	Neutralizing	Immunogen	Species(Isotype)
313 10/54	gp120(V3 311-321 HXB10)	gp120(313-323)	RGPGRAFVTIG	L (HXB10)	rgp120 BH10	rat(IgG_1)

References: [McKeating92a, McKeating93b, McKeating93a]

NOTES:

- 10/54: Binding to virion gp120 enhanced by sCD4 [McKeating92a]
- 10/54: Studied in the context of a neutralization escape mutant [McKeating93b]

MAb ID	Location	WEAU	Sequence	Neutralizing	Immunogen	Species(Isotype)
314 10/36e	gp120(V3 311-321 HXB10)	gp120(313-323)	RGPGRAFVTIG	L (HXB10)	rgp120 BH10	rat(IgG_{2a})

References: [McKeating92a, McKeating93a]

NOTES:

- 10/36e: Binding to virion gp120 enhanced by sCD4 [McKeating92a]

MAb ID	Location	WEAU	Sequence	Neutralizing	Immunogen	Species(Isotype)
315 11/85b	gp120(V3 311-321 HXB10)	gp120(313-323)	RGPGRAFVTIG	L (HXB2)	rgp120 BH10	rat(IgG_{2b})

References: [McKeating92a, McKeating93a]

NOTES:

- 11/85b: Binding to virion gp120 enhanced by sCD4 [McKeating92a]

MAb ID	Location	WEAU	Sequence	Neutralizing	Immunogen	Species(Isotype)
316 41.1	gp120(V3 HXB10)	gp120	conformation dependent	L (HXB2)	rgp120 BH10	rat(IgG_{2a})

References: [McKeating92a, McKeating93a, Klasse et al.(1993a), McLain & Dimmock(1994)]

NOTES:

- 41.1: The gp41 mutation 582(Ala to Thr) results in conformational changes in gp120 that confer neutralization resistance to conformationally sensitive neutralizing MAbs – neutralization efficiency of 41.1 is not affected [Reitz Jr. et al.(1988), Klasse et al.(1993a)]
- 41.1: Called ICR41.1i – Kinetics of neutralization studied – no lag for 39.3b, while ICR 39.13g and ICR 41.1i have lags of 5 and 15 min respectively – neutralization mediated by 3 molecules of IgG per virion – most efficient at neutralization of the three MAbs studied – acts with multi-hit kinetics [McLain & Dimmock(1994)]

	MAb ID	Location	WEAU	Sequence	Neutralizing	Immunogen	Species(Isotype)
317	loop 2	gp120(V3)	gp120(311-322)	SISGPGRAFYTG	?	HIV-1 infection	human Fab

References: [Barbas93, Moore94b, Wu et al.(1996)]

NOTES:

- loop 2: Sequences of the heavy and light chain Fab variable regions were generated [Barbas93]
- loop 2: Called Loop 2 – shows modest cross-reactivity among B clade gp120s, little outside B clade [Moore94b]
- loop 2: MIP-1α binding to CCR-5 expressing cells can be inhibited by gp120-sCD4 – binding of loop 2 blocks this inhibition [Wu et al.(1996)]

318	257-D	gp120(V3 MN)	gp120(309-313)	KRIHI	L	HIV-1 infection	human($IgG_{1\lambda}$)

Donor: Susan Zolla-Pazner (NYU Med. Center)

References: [Gorny91, D'Souza91, Karwowska92a, Gorny93, Cavacini93, Spear et al.(1993), D'Souza94, VanCott et al.(1994), Zolla-Pazner95, Schutten et al.(1995)]

NOTES:

- 257-D: Called 257-2-D-IV – potent neutralizing MAb [D'Souza91]
- 257-D: Reacts with MN, NY5, CDC4 and SF2, does not cross-react with RF, WM52, or HXB2 [Karwowska92a]
- 257-D: Neutralizes MN – binds SF2: KSIYI – specificity: MN, SF2, NY5, RF. [Gorny93]
- 257-D: Additive MN or SF2 neutralization when combined with CD4 binding site MAb F105 – does not neutralize RF [Cavacini93]
- 257-D: Mediated deposition of complement component C3 on HIV infected cells, enhanced by second Ab binding, rabbit anti-human IgG – complement mediated virolysis of MN, but not in the presence of sCD4 [Spear et al.(1993)]
- 257-D: Included a multi-lab study for antibody characterization and assay comparison – best NAb against MN, but not IIIB [D'Souza94]
- 257-D: Potent MN neutralization, slow dissociation constant [VanCott et al.(1994)]
- 257-D: In serotyping study using flow-cytometry, bound only to virus with KRIHI [Zolla-Pazner95]
- 257-D: Only inhibition of SI phenotype, and strong enhancement of NSI phenotype chimeric viruses, that incorporated different envs from the same donor [Schutten et al.(1995)]
- 257-D: UK Medical Research Council AIDS reagent: ARP3023
- 257-D: NIH AIDS Research and Reference Reagent Program: 1510

319	4117C	gp120(V3)	gp120(311-317)	IXIGPGR	L	HIV-1 infection	human($IgG_{1\lambda}$)

References: [Tilley et al.(1991), Tilley92, Veronese93, Pinter93, Pinter93a]

NOTES:

- 4117C: Potent neutralizing activity against MN, SF-2, and NY-5 – synergy with CD4BS MAb 1125H [Tilley et al.(1991)]
- 4117C: Neutralizes SF2 and MN synergistically combined with anti-CD4 binding site discontinuous MAb [Pinter93, Tilley92]
- 4117C: Binds V3 loop – does not immunoprecipitate soluble gp120, does react with gp120 on intact virions [Pinter93a]

320	41148D	gp120(V3 MN)	gp120(309-315)	KRIHIGP	L	HIV-1 infection	human(IgG)

References: [Pinter93a]

NOTES:

- 41148D: Neutralizes less potently than 4117C, reacts with MN, IIIB, SF2 [Pinter93a]

321	453-D	gp120(V3 MN)	gp120(311-317)	IHIGPGR	L	HIV-1 infection	human($IgG_{1\lambda}$)

References: [Gorny93, VanCott et al.(1994)]

NOTES:

- 453-D: Neutralizes MN – binds SF2: IYIGPGR – specificity: MN, SF2, NY5, RF [Gorny93]
- 453-D: Moderate homologous neutralization, moderately slow dissociation rate [VanCott et al.(1994)]

	MAb ID	Location	WEAU	Sequence	Neutralizing	Immunogen	Species(Isotype)
322	504-D	gp120(V3)	gp120(311-317)	IHIGPGR	L	HIV-1 infection	human(IgG$_{1\kappa}$)

References: [Gorny93]

NOTES:

- 504-D: 504-D – Neutralizes MN – binds SF2: IYIGPGR [Gorny93]

323	418-D	gp120(V3)	gp120(312-318)	HIGPGRA	L	HIV-1 infection	human(IgG$_{1\kappa}$)

References: [Karwowska92a, Gorny93]

NOTES:

- 418-D: MN strain specific, does not cross-react with SF2, NY5, RF, CDC4 WM52 or HXB2 [Karwowska92a]
- 418-D: Neutralizes MN, does not bind to SF2 or HXB2 [Gorny93]

324	311-11-D	gp120(V3)	gp120(309-315)	KRIHIGP	L	HIV-1 infection	human(IgG$_{1\lambda}$)

References: [Gorny93, Spear et al.(1993)]

NOTES:

- 311-11-D: Neutralizes MN – binds SF2: KSIYIGP [Gorny93]
- 311-11-D: Mediated deposition of complement component C3 on HIV infected cells, enhanced by second Ab binding, rabbit anti-human IgG [Spear et al.(1993)]

325	391/95-D	gp120(V3)	gp120(308-322)	RKRIHIGPGRAFYTT	L	HIV-1 infection	human(IgG$_{1\kappa}$)

References: [Gorny93]

NOTES:

- 391/95-D: Neutralizes MN – binds to SF2, not IIIB [Gorny93]

326	412-D	gp120(V3 MN)	gp120(308-322)	RKRIHIGPGRAFYTT	L	HIV-1 infection	human(IgG$_{1\kappa}$)

References: [Gorny93, Spear et al.(1993), VanCott et al.(1994)]

NOTES:

- 412-D: Neutralizes MN, does not bind SF2 or HXB2 – not reactive with hexa or heptapeptides by PEPscan [Gorny93]
- 412-D: Mediated deposition of complement component C3 on HIV infected cells, enhanced by second Ab binding, rabbit anti-human IgG [Spear et al.(1993)]
- 412-D: Relatively rapid dissociation and weak homologous neutralization – also called 412-10D [VanCott et al.(1994)]

327	477-D	gp120(V3)	gp120(312-315)	HIGP	L	HIV-1 infection	human(IgG$_{1\kappa}$)

References: [Gorny93]

NOTES:

- 477-D: MN and SF2 strain specific, does not cross-react with NY5, RF, CDC4, WM52 or HXB2 [Karwowska92a]
- 477-D: Neutralizes MN – binds SF2: YIGP [Gorny93]

328	μ5.5	gp120(V3 311-324 MN)	gp120(310-323)	RIHIGPGRAFYTTG	P L	?	murine

Donor: T. Hattori, Kyoto U., Japan, and H. Schuitemaker and H. Huisman, Netherlands Red Cross

References: [Maeda et al.(1992), D'Souza94]

NOTES:

- μ5.5: Binds MN but not IIIB infected HUT 78 cells, and blocks sCD4-induced 0.5β binding to MN [Maeda et al.(1992)]
- μ5.5: Included in a panel of antibodies used in a multi-lab study for antibody characterization, and binding and neutralization assay comparison [D'Souza94]

	MAb ID	Location	WEAU	Sequence	Neutralizing	Immunogen	Species(Isotype)
329	83.1	gp120(V3 312-318 MN)	gp120(311-317)	IXIGPGR	L P	MN V3 Peptide	murine(IgG_1)

References: [WhiteScharf93, Potts et al.(1993), Robert-Guroff et al.(1994), D'Souza94, Moore94b, Trkola et al.(1996)]

NOTES:

- 83.1: Epitope defined by peptide reactivity and changes in binding affinity with substitutions [WhiteScharf93]
- 83.1: No synergistic neutralization of MN when combined with CD4BS MAb F105, some with sCD4 – synergistic neutralization with sCD4 of a field isolate [Potts et al.(1993)]
- 83.1: MN V3 loop in a HXB2 background allows enhanced FACs labeling of infected H9 cells and increased Ab affinity [Robert-Guroff et al.(1994)]
- 83.1: Included in a multi-lab study for antibody characterization and binding and neutralization assay comparison [D'Souza94]
- 83.1: Shows modest cross-reactivity among B clade gp120s, little outside B clade [Moore94b]
- 83.1: Inhibits gp120 interaction with CCR-5 in a MIP-1β-CCR-5 competition study [Trkola et al.(1996)]

330	F58/H3	gp120(V3 307-316 IIIB)	gp120(310-319)	RIQRGPGRAF	L P	IIIB gp120	murine($IgG_{1\kappa}$)

References: [Akerblom90, Broliden90, Marks et al.(1992), D'Souza94, Duarte94, Thali94, Hinkula et al.(1994)]

NOTES:

- F58/H3: Neutralized multiple primary isolates with varying potency, no ADCC activity [Akerblom90]
- F58/H3: Variable domain sequenced and is identical to P4/D10 [Marks et al.(1992)]
- F58/H3: Included in a multi-lab study for antibody characterization and neutralization assay comparison [D'Souza94]
- F58/H3: Neutralizes IIIB but not SF2 or MN [Duarte94]
- F58/H3: gp41 mutation that confers resistance to neutralization by anti-CD4 binding site antibodies does not reduce neutralizing efficiency of this V3 region MAb [Thali94]
- F58/H3: Used for passive immunotherapy in seven late-state HIV-infected patients – in 5/7 the serum level of p24 decreased [Hinkula et al.(1994)]

331	A47/B1	gp120(V3 307-316 IIIB)	gp120(311-320)	IQRGPGRAFV	L P	IIIB gp120	murine(IgG)

References: [Akerblom90]

332	G44/H7	gp120(V3 307-316 IIIB)	gp120(311-320)	IQRGPGRAFV	L P	IIIB gp120	murine(IgG)

References: [Akerblom90]

333	D59/A2	gp120(V3 307-316 IIIB)	gp120(311-320)	IQRGPGRAFV	L P	IIIB gp120	murine(IgG)

References: [Akerblom90]

334	IIIB-34 V3	gp120(V3 308-316 IIIB)	gp120(311-319)	IQRGPGRAF	L	Peptide	murine(IgG_1)

References: [Laman92, Laman et al.(1993)]

NOTES:

- IIIB-34 V3: Neutralizes IIIB but not MN – QXGPG are critical amino acids for binding by pepscan analysis [Laman92]
- IIIB-34 V3: Called IIIB-V3-34 – IIIB strain specific neutralization – binding is reduced somewhat by DTT or SDS-DTT, enhanced by NP40, but binds to native and denatured gp120 [Laman et al.(1993)]
- IIIB-34 V3: UK Medical Research Council AIDS reagent: ARP3047

	MAb ID	Location	WEAU	Sequence	Neutralizing	Immunogen	Species(Isotype)
335	IIIB-13 V3	gp120(V3 308-316 IIIB)	gp120(311-319)	IQRGPGRAF	L	Peptide	murine(IgG_1)

References: [Laman92, Laman et al.(1993), D'Souza94, Watkins93]

NOTES:

- IIIB-13 V3: Also known as 1044-13 and as IIIB-V3-13 (J. P. Moore, per. comm.)
- IIIB-13 V3: Neutralizes IIIB but not MN [Laman92]
- IIIB-13 V3: Included in a panel of antibodies used in a multi-lab study for antibody characterization and assay comparison, some neutralization of strains other than IIIB [D'Souza94]
- IIIB-13 V3: Called IIIB-V3-13 – a neutralization escape mutant (HXB2 A281V) was selected by growth of HXB2 in the presence of broadly neutralizing sera – IIIB-V3-13 neutralization was only slightly reduced by this mutation [Watkins93]
- IIIB-13 V3: UK Medical Research Council AIDS reagent: ARP3046
- IIIB-13 V3: NIH AIDS Research and Reference Reagent Program: 1727

---

336 M77 gp120(V3 IIIB) gp120(309-322) IRIQRGPGRAFVTI L HIV-1 infection human(IgG)

References: [Pal et al.(1992), Veronese92, Veronese93, Watkins93, Cook et al.(1994), Devico et al.(1995), Denisova et al.(1995), Watkins et al.(1996)]

NOTES:

- M77: IIIB-specific MAb, immunoprecipitates deglycosylated form [Veronese92]
- M77: Antibody binding to viral isolates from IIIB infected lab worker followed through time – A to T substitution resulted in the loss of neutralization and native gp120 binding, but not peptide binding [Veronese93]
- M77: MAbs against the glycosphingolipid GalCer block HIV infection of normally susceptible CD4 negative cells from the brain and colon – this MAb can inhibit gp120 binding to GalCer *in vitro* [Cook et al.(1994)]
- M77: Reacted with both reduced and non-reduced covalently cross-linked gp120-CD4 complex [Devico et al.(1995)]
- M77: Conformational rearrangements upon binding of M77 to gp120 generates novel epitopes called metatopes [Denisova et al.(1995)]
- M77: Stated to be a murine MAb – a neutralization escape mutant (HXB2 A281V) was selected by growth of HXB2 in the presence of broadly neutralizing sera – M77 neutralization was only slightly reduced by this mutation [Watkins93]
- M77: Native M77 is highly strain specific, and V3 binding is primarily dependent on its heavy chain – a light chain switched Fab version of M77 could recognize HIV-1 strains that had substitutions on the left side of the V3 loop – R in GPGR is likely to be critical for binding [Watkins et al.(1996)]

---

337 268-D gp120(V3 MN) gp120(312-317) HIGPGR L HIV-1 infection human($IgG_{1\lambda}$)

Donor: Susan Zolla-Pazner (NYU Med. Center)

References: [Gorny91, D'Souza91, Karwowska92a, Gorny93, Spear et al.(1993), VanCott et al.(1994), Zolla-Pazner95]

NOTES:

- 268-D: Called 268-11-D-IV – strain specific weakly neutralizing [D'Souza91]
- 268-D: Reacts with MN, NY5, CDC4, RF and SF2, does not cross-react with WM52 or HXB2 [Karwowska92a]
- 268-D: Neutralizes MN – binds SF2: YIGPGR – specificity: MN, SF2, NY5, RF, CDC4 [Gorny93]
- 268-D: Mediated deposition of complement component C3 on HIV infected cells, but not in the presence of sCD4 [Spear et al.(1993)]
- 268-D: Moderate dissociation rate and homologous neutralization titer [VanCott et al.(1994)]
- 268-D: Serotyping study using flow-cytometry, if H of HIGPGR was substituted in virus, 268-D did not bind [Zolla-Pazner95]
- 268-D: UK Medical Research Council AIDS reagent: ARP3024
- 268-D: NIH AIDS Research and Reference Reagent Program: 1511

	MAb ID	Location	WEAU	Sequence	Neutralizing	Immunogen	Species(Isotype)
338	0.5β	gp120(V3 316-330 HXB2)	gp120(313-326)	RGPGRAFVTIGKIG	L	IIIB Env	murine(IgG$_{1\kappa}$)

Donor: Shuzo Matsushita or Toshio Hattori of Kumamoto University

References: [Matsushita88, Skinner88, Skinner88a, Reitz Jr. et al.(1988), Nara90, D'Souza91, Matsushita et al.(1992), Emini92, Maeda et al.(1992), McKeating92a, Sperlagh et al.(1993), Veronese93, Moore93c, Klasse et al.(1993a), Watkins93, Cook et al.(1994), Thali94, Okada94, Boudet et al.(1994), Broder et al.(1994), Warrier96, McDougal96]

NOTES:

- 0.5β: Type-specific neutralization of IIIB – does not neutralize MN or RF [Matsushita88, Skinner88]
- 0.5β: Emergence of virus resistant to MAb 0.5β and autologous sera neutralization in IIIB infected chimps [Nara90]
- 0.5β: Potent neutralizing activity [D'Souza91]
- 0.5β: Chimeric mouse-human MAb Cβ1 was constructed by combining the human Cγ1 and Cκ constant regions with the 0.5β murine MAb – ADCC and neutralizing activity[Matsushita et al.(1992)]
- 0.5β: sCD4 causes loss of IIIB type-specificity, allowing binding and neutralization of MN, in contrast to MAb μ5.5 [Maeda et al.(1992)]
- 0.5β: Monoclonal anti-idiotype antibodies that mimic the 0.5β epitope were were generated [Sperlagh et al.(1993)]
- 0.5β: Neutralization of virus carrying a A to T substitution (contrast with MAb M77) [Veronese93]
- 0.5β: Binding to native gp120 100-300 fold greater than to denatured [Moore93c]
- 0.5β: The gp41 mutation 582(Ala to Thr) results in conformational changes in gp120 that confer neutralization resistance to some antiserum and conformationally sensitive neutralizing MAbs – neutralization efficiency of 0.5β is not affected [Reitz Jr. et al.(1988), Klasse et al.(1993a)]
- 0.5β: A neutralization escape mutant (HXB2 A281V) was selected by growth of HXB2 in the presence of broadly neutralizing sera – of the MAbs tested , 0.5β neutralization was the most profoundly affected by this mutation [Watkins93]
- 0.5β: MAbs against the glycosphingolipid GalCer block HIV infection of normally susceptible CD4 negative cells from the brain and colon – this MAb can inhibit gp120 binding to GalCer *in vitro* [Cook et al.(1994)]
- 0.5β: gp41 mutation that confers resistance to neutralization by anti-CD4 binding site antibodies does not reduce neutralizing efficiency of this V3 region MAb [Thali94]
- 0.5β: Binding domain aa 310-319: RGPGRAFVTIGKIG – mutations in the V3 loop from basic residues can destroy virus infectivity and syncytium formation: 306 R/T,309 R/T and 313 R/G can also reduce binding of V3 MAbs with two different binding sites: 9284 and 0.5β [Okada94]
- 0.5β: Type-specific neutralization of IIIB – does not neutralize SF2 [Broder et al.(1994)]
- 0.5β: Synergistic neutralization of HIV-1 when combined with anti-V2 MAb C108G [Warrier96]
- 0.5β: Neutralized LAI [Watkins93]
- 0.5β: UK Medical Research Council AIDS reagent: ARP3025
- 0.5β: NIH AIDS Research and Reference Reagent Program: 1591

339	924	gp120(V3 309-318 IIIB)	gp120(308-316)	RKSIRIQRGPG	?	vaccinia-gp160 IIIB	murine(IgG$_{1\kappa}$)

References: [Chesebro & Wehrly(1988), Pincus et al.(1991), Cook et al.(1994)]

NOTES:

- 924: HIV IIIB strain specific [Chesebro & Wehrly(1988)]
- 924: Epitope sequence is based on database count of a specified location – 924-RAC immunotoxin is IIIB strain-specific [Pincus et al.(1991)]
- 924: MAbs against the glycosphingolipid GalCer block HIV infection of normally susceptible CD4 negative cells from the brain and colon – this MAb can inhibit gp120 binding to GalCer *in vitro* [Cook et al.(1994)]

	MAb ID	Location	WEAU	Sequence	Neutralizing	Immunogen	Species(Isotype)
340	907	gp120(V3 309-318)	gp120(308-316)	RKSIRIQRGPG	L	vaccinia-gp160 IIIB	murine($IgG_{1\kappa}$)

References: [Chesebro & Wehrly(1988), Pincus et al.(1989), Pincus et al.(1991)]

NOTES:

- 907: Strain specific binding, and neutralization of only the LAV strain [Chesebro & Wehrly(1988)]
- 907: Coupled to ricin A chain (RAC), MAb 907 inhibited protein synthesis and cell growth in HIV-infected cells [Pincus et al.(1989)]
- 907: Epitope sequence is based on database count of a specified location – 924-RAC immunotoxin is IIIB strain-specific [Pincus et al.(1991)]

341	Cβ1	gp120(V3 316-330 HXB2)	gp120(313-326)	RGPGRAFVTIGKIG	L	IIIB Env	human (IgG_1) 0.5β chimera

References: [Emini92]

NOTES:

- Cβ1: Passive transfer to chimpanzees confers protection against challenge with homologous cell-free virus – mouse 0.5β human IgG_1 chimera [Emini92]

342	386-D	gp120(V3 MN)	gp120(312-315)	HIGPGR	L	HIV-1 infection	human($IgG_{1\lambda}$)

References: [Karwowska92a, Gorny93, VanCott et al.(1994)]

NOTES:

- 386-D: Neutralizes MN – binds SF2: YIGPGR – specificity: MN, SF2, NY5, RF, CDC4 [Gorny93]
- 386-D: Slow dissociation rate, potent homologous neutralization [VanCott et al.(1994)]

343	5021	gp120(V3)	gp120(312-318)	QrGPGRa	L	15 mer BH10 V3 peptide	murine(IgG)

References: [Durda88, Durda90, Langedijk et al.(1991), Moore93c]

NOTES:

- 5021: Generation and fine mapping of murine MAbs [Langedijk et al.(1991)]
- 5021: Binding to native gp120 100-300 fold greater than to denatured – 314G/W substitution abolishes binding, changes outside the loop have little effect [Moore93c]

344	5042	gp120(V3)	gp120(312-318)	QRGPGRA	L	peptide	murine

References: [Durda88, Durda90, Moore93c]

NOTES:

- 5042: Binding to native gp120 100-300 fold greater than to denatured – 314G/W substitution abolishes binding, changes outside the loop have little effect [Moore93c]

345	F58/D1	gp120(V3)	gp120(311-318)	IXXGPGRA	L	virus derived gp120	human

References: [Akerblom90, Broliden91, Moore93c]

NOTES:

- F58/D1: Binding to native gp120 1-3 fold greater than to denatured – 314G/W substitution abolishes binding, changes outside the loop have little effect [Moore93c]

346	P1/D12	gp120(V3)	gp120(311-318)	IXXGPGRA	L	virus derived IIIB gp120	murine(IgG)

References: [Akerblom90, Moore93c]

NOTES:

- P1/D12: Binding to native gp120 1-3 fold greater than to denatured – 314G/W substitution abolishes binding, changes outside the loop have little effect [Moore93c]

	MAb ID	Location	WEAU	Sequence	Neutralizing	Immunogen	Species(Isotype)
347	P4/D10	gp120(V3)	gp120(311-318)	IXXGPGRA	L	virus derived IIIB gp120	murine($IgG_{1\kappa}$)

References: [Akerblom90, Broliden90, Broliden91, Marks et al.(1992), Moore93c, Hinkula et al.(1994)]

NOTES:

- P4/D10: Neutralizing and ADCC activity [Broliden90]
- P4/D10: Variable domain sequenced and is identical to F58/H3 [Marks et al.(1992)]
- P4/D10: Binding to native gp120 3 fold greater than to denatured – 314G/W substitution abolishes binding, changes outside the loop have little effect [Moore93c]
- P4/D10: Used for passive immunotherapy in four late-stage HIV-infected patients – the serum level of p24 did not decrease in any of these four – see also MAb F58/H3 [Hinkula et al.(1994)]

348	419-D	gp120(V3)	gp120(311-317)	IHIGPGR	L	HIV-1 infection	human($IgG_{1\lambda}$)

References: [Karwowska92a, Gorny93, Spear et al.(1993)]

NOTES:

- 419-D: MN, NY5 and SF2 strain specific, does not cross-react with RF, CDC4, WM52 or HXB2 [Karwowska92a]
- 419-D: Neutralizes MN – binds SF2: IYIGPGR [Gorny93]
- 419-D: Mediated deposition of complement component C3 on HIV infected cells, enhanced by second Ab binding, rabbit anti-human IgG [Spear et al.(1993)]

349	537-D	gp120(V3)	gp120(313-317)	IGPGR	L	HIV-1 infection	human($IgG_{1\lambda}$)

References: [Karwowska92a, Gorny92, Gorny93, VanCott et al.(1994)]

NOTES:

- 537-D: Reacts with MN, NY5, CDC4, RF, WM52 and SF2, but does not cross-react with HXB2 [Karwowska92a]
- 537-D: MN type specific neutralization observed – binds SF2, also IGPGR [Gorny92, Gorny93]
- 537-D: Moderate homologous neutralization, relatively rapid dissociation constant [VanCott et al.(1994)]

350	NM-01	gp120(V3 MN)	gp120(314-317)	GPGR	L	IIIB MN	murine(IgG)

References: [Ohno91]

MAb ID	Location	WEAU	Sequence	Neutralizing	Immunogen	Species(Isotype)
351 447-52D	gp120(V3 MN)	gp120(314-317)	GPXR	L P	HIV-1 infection	human($IgG_{3\lambda}$)

Donor: Dr. Susan Zolla-Pazner, NYU Med Center NY, NY

References: [Gorny92, Buchbinder et al.(1992), Karwowska92a, Gorny93, Keller93, Cavacini93, Spear et al.(1993), Conley94, Laal et al.(1994), VanCott et al.(1994), Gorny et al.(1994), Moore94d, Zolla-Pazner95, Moore95b, Moore & Ho(1995), Forthal et al.(1995), Trkola et al.(1996), Sattentau(1996)]

NOTES:

- 447-52D: Also called 447/52-DII, and 447-D (per. comm. S. Zolla-Pazner)
- 447-52D: Requires GPXR at the tip of the V3 loop – neutralizes a broad array of B clade lab isolates [Gorny92]
- 447-52D: 60-fold increase in neutralization potency when combined 1:1 with human MAb 588-D [Buchbinder et al.(1992)]
- 447-52D: Reacts with MN, NY5, CDC4, SF2, RF, WM52, and HXB2 [Karwowska92a]
- 447-52D: Neutralizes MN and IIIB: GPGR, and binds SF2: GPGR [Gorny93]
- 447-52D: Any of the residues ADGLMNQRS in the X position tolerated in peptides that react well with the antibody [Keller93]
- 447-52D: Additive neutralization of MN and SF2 when combined with CD4 binding site MAb F105 – supra-additive neutralization of RF [Cavacini93]
- 447-52D: Complement mediated virolysis of IIIB, but not in the presence of sCD4 [Spear et al.(1993)]
- 447-52D: Requires GPxR at the tip of the V3 loop, common in B clade – neutralized primary isolates [Conley94]
- 447-52D: Neutralization synergy in combination with CD4 binding domain MAb's [Laal et al.(1994)]
- 447-52D: GPGQ in MAL resulted in enhanced dissociation – GPGQ in CM234 or K14T did not bind – binding affected by identity of amino acids flanking GPGR core [VanCott et al.(1994)]
- 447-52D: Mild oxidation of carbohydrate moieties does not alter binding [Gorny et al.(1994)]
- 447-52D: Competition studies with human sera from seroconverting individuals showed that anti-CD4 BS antibodies can arise very early in infection, comparable or prior to anti-V3 antibodies [Moore94d]
- 447-52D: Serotyping study using flow-cytometry – bound only to GPGR V3 loop tips [Zolla-Pazner95]
- 447-52D: Binding affected by identity of amino acids flanking GPGR core – poor breadth of primary virus neutralization [Moore95b]
- 447-52D: Review: the V3 loop motif GPGR is not common outside subtype B isolates, MAb 19b is more cross-reactive [Moore & Ho(1995)]
- 447-52D: neutralizing (- complement), no ADCC activity, and no viral enhancing activity [Forthal et al.(1995)]
- 447-52D: Neutralizes JR-FL – strongly inhibits gp120 interaction with CCR-5 in a MIP-1β-CCR-5 competition study [Trkola et al.(1996)]
- 447-52D: Review: called 447-52-D – only four epitopes have been described which can stimulate a useful neutralizing response to a broad spectrum of primary isolates, represented by the binding sites of MAbs: 447-52-D, 2G12, Fab b12, and 2F5 [Sattentau(1996)]

MAb ID	Location	WEAU	Sequence	Neutralizing	Immunogen	Species(Isotype)
352 59.1	gp120(308-313 MN)	gp120(314-319)	GPGRAF	L P	V3 MN peptide	murine(IgG_1)

Donor: Mary White-Scharf, Repligen Corporation

References: [D'Souza91, WhiteScharf93, Potts et al.(1993), Ghiara et al.(1993), Bou-Habib94, D'Souza94]

NOTES:

- 59.1: Called R/V3-59.1 – potent neutralizing MAb [D'Souza91]
- 59.1: Epitope defined by peptide reactivity and binding affinity with amino acid substitutions [WhiteScharf93]
- 59.1: Synergistic neutralization of MN when combined with sCD4 or the CD4BS MAb F105 [Potts et al.(1993)]
- 59.1: Crystal structure of a 24 amino acid peptide from the V3 loop bound to 59.1 Fab fragment [Ghiara et al.(1993)]
- 59.1: Greater affinity for T cell tropic strain T-CSF than the primary isolate JR-CSF, from which T-CSF was derived [Bou-Habib94]
- 59.1: Multi-lab study for antibody characterization and assay comparison – neutralizes MN and IIIB [D'Souza94]

	MAb ID	Location	WEAU	Sequence	Neutralizing	Immunogen	Species(Isotype)
353	50.1	gp120(V3 MN)	gp120(310-314)	RIHIG	L	V3 MN peptide	murine(IgG_1)

Donor: Mary White-Scharf, Repligen Corporation

References: [D'Souza91, WhiteScharf93, Potts et al.(1993), Ghiara et al.(1993), Rini et al.(1993), Bou-Habib94, VanCott et al.(1994), Robert-Guroff et al.(1994), Moore94b]

NOTES:

- 50.1: Called R/V3-50.1 – potent neutralizing MAb [D'Souza91]
- 50.1: Epitope defined by peptide reactivity and changes affinity with amino acid substitutions [WhiteScharf93]
- 50.1: No synergistic neutralization of MN when combined with CD4BS MAb F105 – isotype stated to be IgG_{2a} [Potts et al.(1993)]
- 50.1: Crystal structure of a 24 amino acid peptide from the V3 loop bound to 59.1 and 50.1 Fab fragments [Ghiara et al.(1993)]
- 50.1: Crystal structure of V3 loop bound to 50.1 – light chain binds just to the left of GPG, heavy chain binds further to the left [Rini et al.(1993)]
- 50.1: No neutralization of primary isolate JR-CSF – greater affinity for and neutralization of T cell tropic strain T-CSF, derived from JR-CSF [Bou-Habib94]
- 50.1: Potent MN neutralization, slow dissociation rate [VanCott et al.(1994)]
- 50.1: Chimeric MN V3 loop in an HXB2 background allows increased FACs signal, Ab affinity, and viral neutralization [Robert-Guroff et al.(1994)]
- 50.1: Shows modest cross-reactivity among B clade gp120s, little outside B clade [Moore94b]
- 50.1: NIH AIDS Research and Reference Reagent Program: 1289

354	58.2	gp120(V3 MN)	gp120(312-319)	HIGPGRAF	L P	MN V3 peptide	murine(IgG_1)

References: [WhiteScharf93, Potts et al.(1993), Moore94b]

NOTES:

- 58.2: Epitope defined by peptide reactivity and changes in affinity with amino acid substitutions – 4/7 primarily isolates were neutralized [WhiteScharf93]
- 58.2: Did not synergistically neutralize MN in combination with MAb F105 – there was synergistic neutralization when combined with sCD4 [Potts et al.(1993)]
- 58.2: Modest cross-reactivity among B clade gp120s, little outside B clade – core epitope as I-IHIG [Moore94b]

355	694/98-D	gp120(V3 IIIB)	gp120(316-319)	GRAF	L	HIV-1 infection	human($IgG_{1\lambda}$)

References: [Gorny92, Gorny93, Cavacini93, Spear et al.(1993), Gorny et al.(1994), Laal et al.(1994), VanCott et al.(1994), Cook et al.(1994), Zolla-Pazner95, Forthal et al.(1995)]

NOTES:

- 694/98-D: Type specific lab isolate neutralization was observed [Gorny92]
- 694/98-D: Neutralizes MN and IIIB (GRAF) – binds SF2 (GRAF) – binding reactivity: MN, IIIB, SF2, NY5, RF, CDC4, WM52 [Gorny93]
- 694/98-D: Called 694-D – complement mediated virolysis of IIIB, but not in the presence of sCD4 [Spear et al.(1993)]
- 694/98-D: 50% neutralization of HIV-IIIB at a concentration of 0.15μg/ml [Gorny et al.(1994)]
- 694/98-D: Potent neutralization of IIIB – no neutralization synergy in combination with CD4 binding domain MAbs [Laal et al.(1994)]
- 694/98-D: GRVY did not alter peptide binding – GRVI and GQAW enhanced dissociation – GQVF and GQAL did not bind [VanCott et al.(1994)]
- 694/98-D: MAbs against the glycosphingolipid GalCer block HIV infection of normally susceptible CD4 negative cells from the brain and colon – V3 MAbs can inhibit gp120 binding to GalCer *in vitro* – binding of GalCer to gp120 inhibited but did not completely block MAb binding[Cook et al.(1994)]
- 694/98-D: Serotyping study using flow-cytometry – bound GRAX bearing virus in 10/11 cases – somewhat conformation dependent [Zolla-Pazner95]
- 694/98-D: ADCC activity, and no viral enhancing activity [Forthal et al.(1995)]

	MAb ID	Location	WEAU	Sequence	Neutralizing	Immunogen	Species(Isotype)
356	9205	gp120(V3 IIIB)	gp120(317-319)	core RAF	L	IIIB V3 Peptide	murine(IgG_1)

Donor: NEN, Boston MA, commercial

References: [Durda90, Trujillo et al.(1993), Allaway et al.(1993), VanCott et al.(1994)]

NOTES:

- 9205: Called NEA-9205, epitope RIQRGPGRAFVTIGK – Reacts with three human brain proteins of 35, 55, 110 kDa molecular weight – similar to 9284 [Trujillo et al.(1993)]
- 9205: Synergy with combinations of CD4-based molecules in inhibition of HIV-1 Env mediated cell fusion [Allaway et al.(1993)]
- 9205: Neutralizes IIIB but not MN – significantly slower dissociation constant for IIIB than MN [VanCott et al.(1994)]

357	902	gp120(V3 IIIB)	gp120(315-326)	PGRAFVTIGKIG	L	vaccinia-gp160 IIIB	murine($IgG_{1\kappa}$)

Donor: Bruce Chesebro, Rocky Mountain National Laboratory, Montana

References: [Chesebro & Wehrly(1988), Laman et al.(1993), Broder et al.(1994)]

NOTES:

- 902: Strain specific neutralization of HIV [Chesebro & Wehrly(1988)]
- 902: Epitope may be partially masked or altered in the oligomeric molecule [Broder et al.(1994)]
- 902: NIH AIDS Research and Reference Reagent Program: 522

358	IIIB-V3-01	gp120(V3 IIIB)	gp120(322-330)	IGKIGNMRQ	N	IIIB carboxy-terminus V3-loop peptide	murine(IgG_1)

Donor: Jon Laman

References: [Laman et al.(1993)]

NOTES:

- IIIB-V3-01: Specific for carboxy-terminal flank of the IIIB V3 loop – epitope is hidden native gp120, exposed on denaturation [Laman et al.(1993)]
- IIIB-V3-01: UK Medical Research Council AIDS reagent: ARP3046
- IIIB-V3-01: NIH AIDS Research and Reference Reagent Program: 1726

359	9305	gp120(V3)	gp120		L		murine()

Donor: Du Pont

References: [McDougal96]

360	D/6D1	gp120(V4 351-382 LAI)	gp120(350-431)	ASKLREQFGNNKTII-FKQSSGGDPEIVTHS-FN	N	Baculovirus-expressed rgp120 LAI	murine(IgG_1)

References: [Bristow et al.(1994)]

NOTES:

- D/6D1: V4 MAb generated in a study of the humoral immune response to rgp120 and rgp160 [Bristow et al.(1994)]

361	4D7/4	gp120(V4 361-380 LAI)	gp120(364-384)	IFKQSSGGDPEIVTH-SFNCGG	?	Env glycopro	murine(IgG)

Donor: S. Ranjbar, NIBSC, UK

References: [Moore94a]

NOTES:

- 4D7/4: C3 region – the relative affinity for denatured/native gp120 is >10 [Moore94a]
- 4D7/4: UK Medical Research Council AIDS reagent: ARP3051

	MAb ID	Location	WEAU	Sequence	Neutralizing	Immunogen	Species(Isotype)
362	36.1	gp120(V4 362-381 LAI)	gp120(365-385)	FKQSSGGDPEIVTHS-FNCGGE	?	Env glycopro	murine(IgG)

References: [Thiriart89, Moore94a]

NOTES:

- 36.1: The relative affinity for denatured/native gp120 is >30 – mutations 380 G/F, 381 E/P impair binding [Moore94a]
- 36.1: UK Medical Research Council AIDS reagent: ARP329

363	C12	gp120(V4 362-381 LAI)	gp120(365-385)	FKQSSGGDPEIVTHS-FNCGGE	?	mis-folded LAI rgp160	murine(IgG_1)

Donor: George Lewis

References: [Moore93a, Moore94a, Abacioglu et al.(1994), Moore94c]

NOTES:

- C12: Bound preferentially to denatured IIIB gp120 [Moore93a]
- C12: The relative affinity for denatured/native gp120 is >30 – mutations 380 G/F, 381 E/P, and 384 Y/E impair binding – also binds GEFFYCNSTQLFNS, gp120(380-393 LAI) [Moore94a]
- C12: C3 region – epitope boundaries mapped by peptide scanning, core FNCGG [Abacioglu et al.(1994)]

364	110.D	gp120(C3 380-393 LAI)	gp120(384-397)	GEFFYCNSTQLFNS	?	Env glycopro	murine(IgG)

Donor: F. Traincard, Pasteur Institute, France

References: [Moore94a]

NOTES:

- 110.D: The relative affinity for denatured/native gp120 is >50 [Moore94a]

365	B32	gp120(380-393 LAI)	gp120(384-397)	GEFFYCNSTQLFNS	?	mis-folded LAI rgp160	murine(IgG_1)

References: [Moore94a, Abacioglu et al.(1994)]

NOTES:

- B32: The relative affinity for denatured/native gp120 is >100 – mutations 380 G/F, 381 G/P, 382 F/L, 384 Y/E, and 386 N/R impair binding [Moore94a]
- B32: C3 region – epitope boundaries mapped by peptide scanning – FFY(core) [Abacioglu et al.(1994)]

366	B2C	gp120(C3 HIV2ROD)	gp120	HYQ(core)	L	Peptide	murine

References: [Matsushita et al.(1995)]

NOTES:

- B2C: Viral neutralization was type-specific for HIV-2 ROD [Matsushita et al.(1995)]

367	2H1B	gp120(C3 370-376 HIV2ROD)	gp120(361-367)	RNISFKA	N	Peptide	murine

References: [Matsushita et al.(1995)]

NOTES:

- 2H1B: Binds in WB, but binds poorly to Env on the cell surface [Matsushita et al.(1995)]

368	2F19C	gp120(C3 HIV2ROD)	gp120	APGK(core)	N	Peptide	murine

References: [Matsushita et al.(1995)]

NOTES:

- 2F19C: Binds in WB, but binds poorly to Env on the cell surface [Matsushita et al.(1995)]

	MAb ID	Location	WEAU	Sequence	Neutralizing	Immunogen	Species(Isotype)
369	B15	gp120(V4 395-400 BH10)	gp120(394-399)	WFNSTW	?	mis-folded LAI rgp160	murine(IgG_{2b})

Donor: George Lewis

References: [Moore93a, Moore93c, Abacioglu et al.(1994)]

NOTES:

- B15: Bound preferentially to denatured IIIB gp120 [Moore93a]
- B15: Binds native BH10 gp120 with 5 fold less affinity than denatured – does not bind native or denatured MN gp120 [Moore93c]
- B15: V4 region – epitope boundaries mapped by peptide scanning [Abacioglu et al.(1994)]

370	B34	gp120(V4 395-400 BH10)	gp120(394-399)	WFNSTW	?	mis-folded LAI rgp160	murine(IgG_{2b})

References: [Abacioglu et al.(1994)]

NOTES:

- B34: V4 region – epitope boundaries mapped by peptide scanning [Abacioglu et al.(1994)]

371	7F11	gp120(397-439 IIIB)	gp120(396-440)	?	?	purified gp120	murine

References: [Lasky et al.(1987), Nilsen et al.(1996)]

NOTES:

- 7F11: There is another MAb with this name that binds to integrase [Nilsen et al.(1996)]

372	5C2E5	gp120(C4 406-415 IIIB)	gp120(423-432)	QFINMWQEVK	?	purified gp120	murine

Donor: T. Gregory and R. Ward, Genetech, San Francisco

References: [Lasky et al.(1987), Cordell91]

NOTES:

- 5C2E5: Blocks the gp120-CD4 interaction [Lasky et al.(1987)]
- 5C2E5: Cross-competition with MAbs 5C2E5, ICR38.8f and ICR38.1a [Cordell91]

373	G3-211	gp120(C4 423-437 IIIB)	gp120(424-438)	IINMWQKVGKAMYAP	L	virus derived IIIB gp120	murine(IgG_1)

References: [Sun89]

NOTES:

- G3-211: G3-211, 42, 299, 508, 519, 536, 537: Cross-react with diverse strains by immunofluorescence – blocks HIV binding to CD4+ cells – different neutralization efficiencies [Sun89]

374	G3-537	gp120(C4 423-437 IIIB)	gp120(424-438)	IINMWQKVGKAMYAP	L	virus derived IIIB gp120	murine(IgG_1)

References: [Sun89, Ho91a, McKeating92]

NOTES:

- G3-537: G3-537, 211, 299, 508, 519, 536, 42: Cross-react with diverse strains by immunofluorescence – blocks HIV binding to CD4+ cells – different neutralization efficiencies [Sun89]
- G3-537: Weakly neutralizing – binds to a linear binding domain of gp120, NMWQEVGKAMYAPPISG [McKeating92]

	MAb ID	Location	WEAU	Sequence	Neutralizing	Immunogen	Species(Isotype)
375	polyclonal	gp120(CD4BS)	gp120(426-437)	NMWQEVGKAMYA	L	oral immunization – peptide plus cholera toxin adjuvant	murine(IgA)

References: [Bukawa et al.(1995)]

NOTES:

- polyclonal: Polyclonal secretory IgA antibody raised by mucosal immunization is able to neutralize IIIB, SF2, and MN – HIV-1 neutralization may be due to the V3, CD4 or HPG30 component of the multicomponent peptide immunogen [Bukawa et al.(1995)]

---

376 MO86/C3 gp120(C4 429-443) gp120(430-444) EVGKAMYAPPISGQI ? rIIIB Env 286-467 human(IgM)

References: [Ohlin92]

NOTES:

- MO86: Generated through *in vitro* "immunization" of uninfected-donor lymphocytes [Ohlin92]

---

377 G3-42 gp120(C4 429-438 BRU) gp120(430-439) EVGKAMYAPP L virus derived IIIB gp120 murine(IgG_1)

Donor: Tanox Biosystems Inc and David Ho, ADARC, NY

References: [Sun89, Moore93c, Thali93, Sattentau95a, Moore & Sodroski(1996), Poignard et al.(1996a), Trkola et al.(1996)]

NOTES:

- G3-42: Neutralization of IIIB but not RF [Sun89]
- G3-42: C4 region – binds HXB2 20mer KQIINMWQKVGKAMYAPPIS, and SF-2 and MN gp120s – G3-42, G3-299 have lower affinity than G3-508, G3-519, and G3-536 – bound native gp120, not denatured – poor peptide binding, epitope spans V3-C4 regions – 433A/L, 435Y/H and 430V/S substitutions impaired binding, V3 loop insertion abolished binding [Moore93c]
- G3-42: Inhibits binding of CD4 inducible MAb 48d [Thali93]
- G3-42: Binds with higher affinity to monomer than to oligomer, slow association rate [Sattentau95a]
- G3-42: Inhibits binding of many anti-V3, -CD4 binding site, and -C4 region MAbs – enhances binding of some anti-V2 region MAbs [Moore & Sodroski(1996)]
- G3-42: Epitope described as KQIINMWQKVGKAMYAPPIS – binding resulted in slight gp120 dissociation from virus and exposure of the gp41 epitope for MAb 50-69 [Poignard et al.(1996a)]
- G3-42: Called G3 42 – Does not inhibit gp120 interaction with CCR-5 in a MIP-1β-CCR-5 competition study – described as V3-C4 discontinuous epitope [Trkola et al.(1996)]

---

378 G3-299 gp120(C4 429-438 BRU) gp120(430-439) EVGKAMYAPP L virus derived IIIB gp120 murine(IgG_1)

Donor: M. Fung and Tanox Biosystems Inc and David Ho, ADARC, NY

References: [Sun89, Moore93c, Sattentau95a, Moore & Sodroski(1996), Poignard et al.(1996a)]

NOTES:

- G3-299: Best neutralization of IIIB in panel of 7 MAbs that bind overlapping epitope [Sun89]
- G3-299: C4 region – binds HXB2 20mer KQIINMWQKVGKAMYAPPIS, and SF-2 and MN gp120s – G3-42, G3-299 lower affinity than G3-508, G3-519, and G3-536 – bound native gp120, not denatured – poor peptide binding, epitope spans V3-C4 regions – 433A/L, 435Y/H and 430V/S substitutions impaired binding, V3 loop cleavage or insertion abolished binding [Moore93c]
- G3-299: Binds with higher affinity to monomer than to oligomer, slow association rate, although faster than other C4 MAbs tested, with more potent neutralization of lab strain [Sattentau95a]
- G3-299: Discontinuous V3-C4 epitope, binding enhanced by a few anti-C1, anti-CD4 binding site, and V2 MAbs – binding reciprocally inhibited by anti-V3 MAbs – G3-229 enhances the binding of some anti-V2 MAbs [Moore & Sodroski(1996)]
- G3-299: Epitope described as KQIINMWQKVGKAMYAPPIS – binding resulted in slight gp120 dissociation from virus and exposure of the gp41 epitope for MAb 50-69 [Poignard et al.(1996a)]

	MAb ID	Location	WEAU	Sequence	Neutralizing	Immunogen	Species(Isotype)
379	G3-508	gp120(C4 429-438 BRU)	gp120(430-439)	EVGKAMYAPP	L	virus derived IIIB gp120	murine(IgG_1)

Donor: M. Fung and Tanox Biosystems Inc and David Ho, ADARC, NY

References: [Sun89, Thali93, Moore93c, Sattentau95a, Moore & Sodroski(1996), Poignard et al.(1996a), Trkola et al.(1996)]

NOTES:

- G3-508: Neutralization of IIIB and RF [Sun89]
- G3-508: Inhibits binding of CD4 inducible MAb 48d [Thali93]
- G3-508: C4 region – binds HXB2 20mer KQIINMWQKVGKAMYAPPIS, and SF-2 and MN gp120s – bound denatured with 10 fold greater affinity than native – 433A/L, 435Y/H and 430V/S substitutions impaired binding [Moore93c]
- G3-508: Binds with higher affinity to monomer than to oligomer, slow association rate [Sattentau95a]
- G3-508: Inhibits binding of some V3, C4 and CD4 binding site MAbs, enhances binding of V2 region MAbs [Moore & Sodroski(1996)]
- G3-508: Binding resulted in slight gp120 dissociation from virus and exposure of the gp41 epitope for MAb 50-69 [Poignard et al.(1996a)]
- G3-508: Also called G3 508 – inhibits gp120 interaction with CCR-5 in a MIP-1β-CCR-5 competition study [Trkola et al.(1996)]

	MAb ID	Location	WEAU	Sequence	Neutralizing	Immunogen	Species(Isotype)
380	G3-519	gp120(C4 429-438 BRU)	gp120(430-439)	EVGKAMYAPP	L	virus derived IIIB gp120	murine(IgG_1)

Donor: Tanox Biosystems Inc and David Ho, ADARC, NY

References: [Sun89, Moore93a, Moore93c, D'Souza94, Sattentau95a, Moore & Sodroski(1996), Poignard et al.(1996a)]

NOTES:

- G3-519: Best neutralization of RF in panel of 7 MAbs that bind overlapping epitope [Sun89]
- G3-519: Neutralizes IIIB, is reactive with SF-2 gp120, mild inhibition of HIV-1+ sera binding to IIIB gp120 [Moore93a]
- G3-519: C4 region – binds HXB2 20mer KQIINMWQKVGKAMYAPPIS, and SF-2 and MN gp120s – bound denatured with 5 fold greater affinity than native – 433A/L, 435Y/H, 438P/R and 430V/S substitutions impaired binding [Moore93c]
- G3-519: Included in a multi-lab study for antibody characterization, and binding and neutralization assay comparison, also binds IIIB: IINMWQKVGKAMYAPP [D'Souza94]
- G3-519: Binds with higher affinity to monomer than to oligomer, slow association rate [Sattentau95a]
- G3-519: Non-reciprocal enhanced binding in the presence of the C5 MAb 1C1 and the C1 MAb 135/9 – reciprocal enhanced binding with some V2 MAbs. Inhibited binding the the presence of some C4, V3 and CD4 binding site MAbs [Moore & Sodroski(1996)]
- G3-519: Epitope described as KVGKAMYAPP – binding resulted in slight gp120 dissociation from virus but no significant exposure of the gp41 epitope for MAb 50-69 [Poignard et al.(1996a)]

381	G3-536	gp120(C4 429-438 BRU)	gp120(430-439)	EVGKAMYAPP	L	virus derived IIIB gp120	murine(IgG_1)

Donor: Tanox Biosystems Inc and David Ho, ADARC, NY

References: [Sun89, Ho91a, Cordell91, McKeating92, Moore93a, Moore93c, Gorny et al.(1994), Sattentau95a, Moore & Sodroski(1996), Poignard et al.(1996a)]

NOTES:

- G3-536: Weak neutralization of IIIB and RF – cross-react with diverse strains by immunofluorescence – blocks HIV binding to CD4+ cells – epitope:IINMWQKVGKAMYAP [Sun89]
- G3-536: Cross-competition with MAbs 5C2E5, ICR38.8f and ICR38.1a [Cordell91]
- G3-536: Weakly neutralizing – binds to a linear determinant in the CD4 binding domain of gp120 [McKeating92]
- G3-536: Neutralizes IIIB, is reactive with SF-2 gp120, mild inhibition of HIV-1+ sera binding to IIIB gp120 [Moore93a]
- G3-536: C4 region – binds HXB2 20mer KQIINMWQKVGKAMYAPPIS, and SF-2 and MN gp120s – bound denatured with 15 fold greater affinity than native – 433A/L, 435Y/H, 438P/R, and 430V/S substitutions impaired binding [Moore93c]
- G3-536: Enhances binding of anti-V2 MAb 697-D [Gorny et al.(1994)]
- G3-536: Binds with higher affinity to monomer than to oligomer, slow association rate [Sattentau95a]
- G3-536: Inhibits binding of some V3, C4 and CD4 binding site MAbs, enhances binding of V2 region MAbs [Moore & Sodroski(1996)]
- G3-536: Epitope described as KVGKAMYAPP [Poignard et al.(1996a)]

	MAb ID	Location	WEAU	Sequence	Neutralizing	Immunogen	Species(Isotype)
382	ICR38.1a	gp120(C4 429-438 BRU)	gp120(430-439)	EVGKAMYAPP	L	rBH10 gp120	rat(IgG_{2b})

References: [Cordell91, McKeating92, McKeating92a, McKeating et al.(1992), McKeating93a, McKeating93b, Moore93c]

NOTES:

- ICR38.1a: Weakly neutralizing – binds linear determinant in the CD4 binding domain – cross-competition with MAbs G3-536, 5C2E5, and ICR38.8f [McKeating92, Cordell91]
- ICR38.1a: Unable to exert a synergistic effect in combination with V3 directed MAbs, in contrast to MAb 39.13g, that binds to a conformational epitope involved in CD4 binding [McKeating92a]
- ICR38.1a: Studied in the context of a neutralization escape mutant [McKeating93b]
- ICR38.1a: Unreactive with solid-phase decapeptide, competed in solution phase assay – ICR 38.1a and ICR 38.8f were initially reported to be to independent MAbs, but are actually subclones of the same MAb [Moore93c]
- ICR38.1a: UK Medical Research Council AIDS reagent: ARP388/ARP389

383	ICR38.8f	gp120(C4 429-438 BRU)	gp120(430-439)	EVGKAMYAPP	L	rBH10 gp120	rat(IgG_{2b})

References: [Cordell91]

NOTES:

- ICR38.8f: Weakly neutralizing – binds linear determinant in the CD4 binding domain – cross-competition with ICR38.1a, 5C2E5, and G3-536 [Cordell91]
- ICR38.8f: ICR 38.1a and ICR 38.8f were initially reported to be to independent MAbs, but are actually subclones of the same MAb [Moore93c]

384	G45-60	gp120(C4 429-438 BRU)	gp120(430-439)	GKAMYAPPIS	L	virus derived IIIB gp120	murine(IgG_1)

References: [Sun89, Moore93c, Gorny et al.(1994), Moore & Sodroski(1996)]

NOTES:

- G45-60: C4 region – binds HXB2 20mer KQIINMWQKVGKAMYAPPI, decapeptide flanking peptides also bound – bound equivalently to native and denatured gp120 – 433A/L and 435Y/H (not 430V/S) substitutions impaired binding [Moore93c]
- G45-60: Enhances binding of anti-V2 MAb 697-D [Gorny et al.(1994)]
- G45-60: Non-reciprocal enhancement of G45-60 binding by some C1 and C5 antibodies – reciprocal enhancement of some V2 region MAbs – reciprocal inhibition with many MAbs that bind to the V3, C4 and CD4 binding site regions [Moore & Sodroski(1996)]

385	1662	gp120(C4 IIIB)	gp120(434-440)	AMYAPPI	N	poliovirus-antigen chimera	?

References: [McKeating92]

NOTES:

- 1662: Did not bind to native gp120, epitope not exposed [McKeating92]

386	1663	gp120(C4 IIIB)	gp120(434-440)	AMYAPPI	N	poliovirus-antigen chimera	?

References: [McKeating92]

NOTES:

- 1663: Did not bind to native gp120, epitope not exposed [McKeating92]

387	1664	gp120(C4 IIIB)	gp120(434-440)	AMYAPPI	N	poliovirus-antigen chimera	?

References: [McKeating92]

NOTES:

- 1664: Did not bind to native gp120, epitope not exposed [McKeating92]

	MAb ID	Location	WEAU	Sequence	Neutralizing	Immunogen	Species(Isotype)
388	1697	gp120(C4 IIIB)	gp120(434-440)	AMYAPPI	N	poliovirus-antigen chimera	?

References: [McKeating92]

NOTES:

- 1697: Did not bind to native gp120, epitope not exposed [McKeating92]

389	1794	gp120(C4 IIIB)	gp120(434-443)	AMYAPPISGQ	N	poliovirus env chimera	?

References: [McKeating92]

NOTES:

- 1794: Did not bind to native gp120, epitope not exposed [McKeating92]

390	1804	gp120(C4 IIIB)	gp120(434-443)	AMYAPPISGQ	N	poliovirus env chimera	?

References: [McKeating92]

NOTES:

- 1804: Did not bind to native gp120, epitope not exposed [McKeating92]

391	1807	gp120(C4 IIIB)	gp120(434-443)	AMYAPPISGQ	N	poliovirus env chimera	?

References: [McKeating92]

NOTES:

- 1807: Did not bind to native gp120, epitope not exposed [McKeating92]

392	1808	gp120(C4 IIIB)	gp120(434-443)	AMYAPPISGQ	N	poliovirus env chimera	?

References: [McKeating92]

NOTES:

- 1808: Did not bind to native gp120, epitope not exposed [McKeating92]

393	1795	gp120(CD4BS 425-441 IIIB)	gp120(326-342)	NMWQEVGKAMYAPPI-SG	L	poliovirus env chimera	?

References: [McKeating92]

NOTES:

- 1795: CD4 binding site – weakly neutralizing – binding inhibited by WQEVGKAMYA, GKAM may be involved [McKeating92]

394	13H8	gp120(C4 412-453)	gp120(432-441)	GKAMYAPPIS	L	rgp120 MN	murine(IgG)

References: [Nakamura92, Nakamura93]

NOTES:

- 13H8: Cross blocks 5C2 in IIIB-rsgp160 ELISA – reactive with diverse strains in rgp120 ELISA [Nakamura92]
- 13H8: Bound diverse strains, neutralizing activity against MN [Nakamura93]
- 13H8: Binds V3 and C4 peptides (J. P. Moore, per. comm.)

	MAb ID	Location	WEAU	Sequence	Neutralizing	Immunogen	Species(Isotype)
395	M91	gp120(V5 C5 451-470 LAI)	gp120(463-472)	SNNESEIFRL	N	451 Env	rat(IgG_{2a})

Donor: F. di Marzo Veronese

References: [Veronese92, Moore94a, Moore94c, Moore & Sodroski(1996)]

NOTES:

- M91: Immunoblot reactive, RIP negative, but precipitates deglycosylated gp120 – reacts with strains IIIB, 451, MN, RF, and RUTZ [Veronese92]
- M91: The relative affinity for denatured/native gp120 is 24 – mutation in position 470 P/L impairs binding [Moore94a]
- M91: 470 P/L impairs binding, but not 475 D/V, in contrast to CRA1 – some C2 mutations can enhance binding [Moore94c]
- M91: C5 region linear epitope, binds weakly to nondenatured monomeric gp120 – M91 binding was enhanced by 1C1, but 1C1 binding was inhibited by M91 – non-reciprocal binding enhancement of C1 and V2 antibodies – non-reciprocal binding inhibition of CD4 binding site antibodies [Moore & Sodroski(1996)]

396	CRA1	gp120(V5-C5 451-470 LAI)	gp120(463-472)	SNNESEIFRL	N	Env glycopro	murine(IgG)

Donor: M. Page, NIBSC, UK

References: [Moore93a, Moore94c, Moore94a, Moore & Sodroski(1996), Trkola et al.(1996)]

NOTES:

- CRA1: Also called CRA-1
- CRA1: Bound preferentially to denatured IIIB and SF2 gp120 [Moore93a]
- CRA1: Some C5 mutations abrogate binding 470 P/L or G, 475 M/S, some C2 mutations enhance binding [Moore94c]
- CRA1: The relative affinity for denatured/native gp120 is 24 – C5 mutations 470 P/L or G, 475 M/S impairs binding to the native gp120 – only mutation 470 P/L impairs binding to denatured [Moore94a]
- CRA1: C5 region linear epitope, binds weakly to nondenatured monomeric gp120 – reciprocal binding inhibition with anti-C5 antibodies 1C1 and M91 – non-reciprocal binding enhancement some C1 and V2 antibodies – non-reciprocal binding inhibition of some CD4 binding site antibodies [Moore & Sodroski(1996)]
- CRA1: Does not neutralize JR-FL nor block gp120 interaction with CCR-5 in a MIP-1β-CCR-5 competition study [Trkola et al.(1996)]
- CRA1: UK Medical Research Council AIDS reagent: ARP323

397	9301	gp120(C5 471-490 LAI)	gp120(473-492)	GGGDMRDNWRSELYK-YKVVK	?	Env glycopro	murine(IgG)

Donor: Dupont, commercial

References: [Skinner88, Moore93a, Moore94a, Moore94c]

NOTES:

- 9301: Bound preferentially to denatured IIIB gp120 [Moore93a]
- 9301: The relative affinity for denatured/native gp120 is 19 [Moore94c]

398	M38	gp120(C5 490-508)	gp120(487-506)	KYKVVKEIPLGVAPT-KAKRR	N	IIIB immunization	murine

References: [Beretta87, Grassi91, Lopalco93, deSantis94, Beretta & Dalgleish(1994)]

NOTES:

- M38: Binds to gp120 and to a 80 kd human protein expressed on a small fraction of mononuclear cells in the lymph nodes [Beretta87]
- M38: Binds to the carboxy terminus of gp120, in a gp41 binding region, and also to denatured human HLAs (antigenic homology) [Lopalco93]
- M38: Infected individuals have HLA class I-gp120 cross-reactive antibodies [deSantis94]

	MAb ID	Location	WEAU	Sequence	Neutralizing	Immunogen	Species(Isotype)
399	1C1	gp120(C5 471-490 LAI)	gp120(472-492)	GGGDMRDNWRSELYK-YKVVK	?	Env glycopro	murine (IgG)

Donor: Repligen Inc, commercial

References: [Moore94a, Moore94c, Moore & Sodroski(1996)]

NOTES:

- 1C1: The relative affinity for denatured/native gp120 is 15 [Moore94a]
- 1C1: C2 and V3 regions substitutions can influence binding [Moore94c]
- 1C1: C5 region linear epitope, binds weakly to nondenatured monomeric gp120 – M91 binding was enhanced by 1C1, but 1C1 binding was inhibited by M91 – non-reciprocal binding enhancement of some C1 and V2 antibodies – non-reciprocal binding inhibition of some CD4 binding site antibodies [Moore & Sodroski(1996)]

400	B221	gp120(C5 471-490 LAI)	gp120(472-492)	GGGDMRDNWRSELYK-YKVVK	?	Baculovirus-expressed misfolded rgp160 IIIB:NL43, MicroGenSys	murine($IgG_{1\kappa}$)

Donor: Rod Daniels

References: [Moore93a, Bristow et al.(1994), Moore94a]

NOTES:

- B221: Called 221 – bound preferentially to denatured IIIB gp120 [Moore93a]
- B221: MAbs generated in the context of a study of the humoral immune response to rgp120 and rgp160 – boundaries described as 443-462 of LAI [Bristow et al.(1994)]
- B221: The relative affinity for denatured/native gp120 is 12 – mutation 477 D/V impairs binding [Moore94a]
- B221: Called 221 – C2 and V3 substitutions influence binding [Moore94c]
- B221: UK Medical Research Council AIDS reagent: ARP301

401	660-178	gp120(C5 471-490 LAI)	gp120(472-492)	GGGDMRDNWRSELYK-YKVVK	?	Env glycopro	murine(IgG)

Donor: G. Robey, Abbott Labs

References: [Moore94a, Moore94c]

NOTES:

- 660-178: The relative affinity for denatured/native gp120 is >100 [Moore94a]
- 660-178: ΔV1/V2 and ΔV1/V2/V3 reduce binding – C2 and C5 mutations enhance binding [Moore94c]

402	8C6/1	gp120(V5-C5 471-490 LAI)	gp120(472-492)	GGGDMRDNWRSELYK-YKVVK	?	Env glycopro	murine(IgG)

Donor: S. Ranjbar, NIBSC, UK

References: [Moore94a]

NOTES:

- 8C6/1: V5-C5 region – preferentially binds SDS-DTT denatured gp120 (>30 fold) – mutation 485 K/V impairs binding [Moore94a]
- 8C6/1: UK Medical Research Council AIDS reagent: ARP3052

403	5F4/1	gp120(C5 471-490 LAI)	gp120(472-492)	GGGDMRDNWRSELYK-YKVVK	?	Peptide	murine

Donor: S. Ranjbar, NIBSC, UK

References: [Moore94a]

NOTES:

- 5F4/1: V5-C5 region – preferentially binds SDS-DTT denatured gp120 (>10 fold) – mutation 485 K/V impairs binding [Moore94a]

	MAb ID	Location	WEAU	Sequence	Neutralizing	Immunogen	Species(Isotype)
404	3F5	gp120(C5 471-490 LAI)	gp120(472-492)	GGGDMRDNWRSELYK-YKVVK	?	Env	murine(IgG)

Donor: S. Nigida, NCI, USA

References: [Moore94a]

NOTES:

- 3F5: The relative affinity for denatured/native gp120 is 100 [Moore94a]

405	MO101	gp120(V3 314-323 + C5 494-503)	gp120	GRAFVTIGKI + LGVAPTKAKR	?	pB1 (IIIB Env 286-467)	human(IgM)

References: [Ohlin92]

NOTES:

- MO101: Generated through *in vitro* "immunization" of uninfected-donor lymphocytes: reacts with peptides from the V3 and C4 regions [Ohlin92]

406	9201	gp120(C5 475-486 LAI)	gp120(472-483)	GGGDMRDNWRSE ?	N		murine()

Donor: Du Pont

References: [McDougal96]

NOTES:

- 9201: Does not neutralize LAI [McDougal96]

407	W2	gp120(C5 472-491 LAI)	gp120(473-493)	GGDMRDNWRSELYKY-KVVKI	?	Env	murine(IgG)

Donor: D. Weiner, U. Penn., USA

References: [Moore94a]

NOTES:

- W2: The relative affinity for denatured/native gp120 is 30 – mutation 485 K/V impairs binding [Moore94a]

408	RV110026	gp120(C5 491-500 LAI)	gp120(493-502)	IEPLGVAPTK	?	Peptide	human

Donor: Commercial, Olympus Inc

References: [Moore94a, Moore94c]

NOTES:

- RV110026: Preferentially binds SDS-DTT denatured gp120 (15 fold using R1/87 as capture reagent) [Moore94a]

409	110.1	gp120(C5 491-500 LAI)	gp120(493-502)	IEPLGVAPTK	N	BRU infected cell lysates	murine($IgG_{1\kappa}$)

Donor: Genetic Systems Corp, Seattle WA, E. Kinney-Thomas

References: [Gosting et al.(1987), Linsley et al.(1988), Thomas88, Pincus et al.(1991), Moore94a, Cook et al.(1994), McDougal96]

NOTES:

- 110.1: Referred to as 110-1 – does not inhibit CD4-gp120 binding or neutralize HIV-1 strains [Linsley et al.(1988)]
- 110.1: Difference in the epitope: mapped to aa 421-429 (KQIINMWQE), the T1 sequence – poor efficacy as an immunotoxin when linked to RAC [Pincus et al.(1991)]
- 110.1: The relative affinity for denatured/native gp120 is 0.7 [Moore94a]
- 110.1: MAbs against the glycosphingolipid GalCer block HIV infection of normally susceptible CD4 negative cells from the brain and colon – MAbs against the carboxy-terminus of gp120 inhibit gp120 binding to GalCer but not as potently as anti-V3 MAbs – binding of GalCer to gp120 does not inhibit MAb binding [Cook et al.(1994)]
- 110.1: Does not neutralize HIV-1 LAI [McDougal96]

	MAb ID	Location	WEAU	Sequence	Neutralizing	Immunogen	Species(Isotype)
410	722-D	gp120(C term 503-509)	gp120(505-511)	RRVVQRE	N	HIV-1 infection	human($IgG_{1\kappa}$)

References: [Laal et al.(1994), Forthal et al.(1995)]

NOTES:

- 722-D: Not neutralizing alone, could synergize anti-CD4 binding site antibody neutralization [Laal et al.(1994)]
- 722-D: No neutralizing activity, no ADCC activity, and no viral enhancing activity [Forthal et al.(1995)]

411	670-D	gp120(C term 503-509)	gp120(500-506)	PTKAKRR ?	N	HIV-1 infection	human($IgG_{1\lambda}$)

References: [Zolla-Pazner95, Forthal et al.(1995)]

NOTES:

- 670-D: Group specific cross-clade binding in serotyping study using flow-cytometry [Zolla-Pazner95]
- 670-D: Not neutralizing, positive ADCC activity, and no viral enhancing activity, numbering provided suggests epitope is RRVVQRE [Forthal et al.(1995)]

412	450-D	gp120(C term 475-486 or 503-509 BH10)	gp120(500-506)	PTKAKRRY or RRVVQRE or MRDNWRSELYKY	N	HIV-1 infection?	human($IgG_{1\lambda}$)

References: [Durda88, Karwowska92, Karwowska92a, Spear et al.(1993), Laal et al.(1994), Gorny et al.(1994), Cook et al.(1994), Forthal et al.(1995)]

NOTES:

- 450-D: Bound to MN, SF-2 and IIIB, but was not neutralizing [Karwowska92]
- 450-D: Did not mediate deposition of complement component C3 on HIV infected cells [Spear et al.(1993)]
- 450-D: Not neutralizing alone, could synergize anti-CD4 binding site antibody neutralization [Laal et al.(1994)]
- 450-D: Epitope is defined as PTKAKRR [Gorny et al.(1994)]
- 450-D: MAbs against the glycosphingolipid GalCer block HIV infection of normally susceptible CD4 negative cells from the brain and colon – MAbs against the carboxy-terminus of gp120 do not inhibit gp120 binding to GalCer – binding of GalCer to gp120 does not inhibit MAb binding [Cook et al.(1994)]
- 450-D: No neutralizing activity, no ADCC activity, and no viral enhancing activity [Forthal et al.(1995)]

413	750-D	gp120(C term 503-509)	gp120(500-506)	PTKAKRR	N	HIV-1 infection	human($IgG_{3\lambda}$)

References: [Forthal et al.(1995)]

NOTES:

- 750-D: Not neutralizing, positive ADCC activity, and no viral enhancing activity [Forthal et al.(1995)]

414	120-1	gp120(C term 503-532)	gp120	?	N	Peptide	murine(IgM_{κ})

References: [Chanh et al.(1986), Dalgleish et al.(1988)]

415	858-D	gp120(C term 510-516)	gp120(507-513)	VVQREKR	N	HIV-1 infection	human(IgG)

References: [Zolla-Pazner95, Forthal et al.(1995)]

NOTES:

- 858-D: Group specific cross-clade binding in serotyping study using flow-cytometry [Zolla-Pazner95]
- 858-D: No neutralizing activity, no ADCC activity, and no viral enhancing activity [Forthal et al.(1995)]

	MAb ID	Location	WEAU	Sequence	Neutralizing	Immunogen	Species(Isotype)
416	989-D	gp120(C term)	gp120(507-513)	VVQREKR	?	HIV-1 infection	human(IgG)

References: [Zolla-Pazner95]

NOTES:

- 989-D: In serotyping study using flow-cytometry, showed B clade specificity, but only reacted with 7/11 B clade virus [Zolla-Pazner95]

417	D7324	gp120(C term)	gp120	?	?	?	sheep

References: [Moore(1990), Sattentau91, Wyatt95, Trkola et al.(1996)]

NOTES:

- D7324: Binding unaltered by gp120 binding to sCD4, in contrast to 110.5, 9284, 50-69 and 98-6 [Sattentau91]
- D7324: Binds to the last 15 amino acids in gp120 – used for antigen capture ELISA [Wyatt95]
- D7324: Epitope in C5 – Does not neutralize JR-FL nor block gp120 interaction with CCR-5 in a MIP-1β-CCR-5 competition study [Trkola et al.(1996)]

418	23A	gp120(C term)	gp120	?	N	?	?

Donor: J. Robinson, Tulane University, LA

References: [Wu et al.(1996), Trkola et al.(1996)]

NOTES:

- 23A: Called 2.3A – Did not block ability of gp120-sCD4 complexes to inhibit MIP-1α binding – binds to gp41-binding domain [Wu et al.(1996)]
- 23A: C5 binding MAb – does not inhibit gp120 interaction with CCR-5 in a MIP-1β-CCR-5 competition study [Trkola et al.(1996)]

419	8F101	gp120(dis gp120-CD4)	gp120(dis)	DISCONTINUOUS		sCD4-(rHXB2 gp120)-complex	murine(IgG)

References: [Devico et al.(1995)]

NOTES:

- 8F101: MAbs specifically reactive to crosslinked gp120 and CD4 were derived (8F101, 8F102) – conformation dependent – competition studies indicate the epitope is immunogenic in infected humans [Devico et al.(1995)]

420	8F102	gp120(dis gp120-CD4)	gp120(dis)	DISCONTINUOUS		sCD4-(rHXB2 gp120)-complex	murine(IgG)

References: [Devico et al.(1995)]

NOTES:

- 8F102: MAbs specifically reactive to crosslinked gp120 and CD4 were derived (8F101, 8F102) – conformation dependent – competition studies indicate the epitope is immunogenic in infected humans [Devico et al.(1995)]

421	CG-10	gp120(dis gp120-CD4)	gp120(dis)	DISCONTINUOUS	L	CD4/gp120 complex	murine(IgG_1)

References: [Gershoni et al.(1993), Wu et al.(1996)]

NOTES:

- CG-10: Reacts exclusively with sCD4-gp120 complex, not with sCD4 or gp120 alone [Gershoni et al.(1993)]
- CG-10: Called CG10 – MIP-1α binding to CCR-5 expressing cells can be inhibited by gp120-sCD4, and binding of A32 does not block this inhibition [Wu et al.(1996)]

422	CG-4	gp120(dis gp120-CD4)	gp120(dis)	DISCONTINUOUS	N	CD4/gp120 complex	murine((IgG_1)

References: [Gershoni et al.(1993)]

NOTES:

- CG-4: Reacts with gp120 and sCD4-gp120 complex, not with sCD4 [Gershoni et al.(1993)]

	MAb ID	Location	WEAU	Sequence	Neutralizing	Immunogen	Species(Isotype)
423	CG-9	gp120(dis gp120-CD4)	gp120(dis)	DISCONTINUOUS	L	CD4/gp120 complex	murine(IgG_1)

References: [Gershoni et al.(1993)]

NOTES:

- CG-9: Reacts preferentially with sCD4-gp120, also with sCD4, not with gp120 [Gershoni et al.(1993)]

424	CG-25	gp120(dis gp120-CD4)	gp120(dis)	DISCONTINUOUS	L	CD4/gp120 complex	murine(IgG_1)

References: [Gershoni et al.(1993)]

NOTES:

- CG-25: Reacts preferentially with sCD4-gp120, also with sCD4, not with gp120 [Gershoni et al.(1993)]

425	CG-76	gp120(dis gp120-CD4)	gp120(dis)	DISCONTINUOUS	L	CD4/gp120 complex	murine(IgG_1)

References: [Gershoni et al.(1993)]

NOTES:

- CG-76: Reacts equally well with sCD4-gp120 and sCD4, but not with purified gp120 [Gershoni et al.(1993)]

426	ID6	gp120(1-193 BH10)	gp120	UNDEFINED AMINO TERMINUS		?	murine(IgG_1)

References: [Ugen et al.(1993), Cook et al.(1994)]

NOTES:

- ID6: MAbs against the glycosphingolipid GalCer block HIV infection of normally susceptible CD4 negative cells from the brain and colon – MAbs against the N-terminal half of gp120 do not inhibit gp120 binding to GalCer – binding of GalCer to gp120 does not inhibit MAb binding [Cook et al.(1994)]

427	AD3	gp120(1-193 BH10)	gp120	UNDEFINED AMINO TERMINUS		?	murine(IgG_1)

References: [Ugen et al.(1993), Cook et al.(1994)]

NOTES:

- AD3: MAbs against the glycosphingolipid GalCer block HIV infection of normally susceptible CD4 negative cells from the brain and colon – MAbs against the N-terminal half of gp120 do not inhibit gp120 binding to GalCer – binding of GalCer to gp120 does not inhibit MAb binding [Cook et al.(1994)]

428	522-149	gp120(C1 dis)	gp120(dis)	DISCONTINUOUS	N	Env glycopro	?

Donor: G. Robey, Abbott Inc.

References: [Moore & Sodroski(1996), Trkola et al.(1996)]

NOTES:

- 522-149: binding is enhanced by C5 antibodies M91 and 1C1 – mutual binding-inhibition with anti-C1 antibody 133/290 – binding is destroyed by a W/L (position 61, LAI) gp120 amino acid substitution – other C1 antibodies enhance binding to gp120 [Moore & Sodroski(1996)]
- 522-149: Does not neutralize JR-FL nor block gp120 interaction with CCR-5 in a MIP-1β-CCR-5 competition study [Trkola et al.(1996)]

	MAb ID	Location	WEAU	Sequence	Neutralizing	Immunogen	Species(Isotype)
429	MAG 45	gp120(C1 dis)	gp120(dis)	DISCONTINUOUS	N	sCD4-(rHXB2 gp120)-complex	murine

Donor: C. Y. Kang, IDEC Inc

References: [Kang94, Moore & Sodroski(1996)]

NOTES:

- MAG 45: Only observed amino acid substitution that reduces binding: 88 N/P – does not bind to C1 region 20 mer peptides, tentative classification conformationally sensitive anti-C1 MAb [Kang94]
- MAG 45: Reciprocal binding inhibition with anti-C1-C5 and -C1-C4 discontinuous MAbs – binding enhanced by anti-V3 5G11 – inhibits binding of anti-CD4 binding site MAbs [Moore & Sodroski(1996)]

430	MAG 95	gp120(C1 dis)	gp120(dis)	DISCONTINUOUS	N	sCD4-(rHXB2 gp120)-complex	murine

Donor: C. Y. Kang, IDEC Inc

References: [Kang94]

NOTES:

- MAG 95: Only observed amino acid substitution that reduces binding: 88 N/P – does not bind to C1 region 20 mer peptides, tentative classification conformationally sensitive anti-C1 MAb [Kang94]

431	MAG 97	gp120(C1 dis)	gp120(dis)	DISCONTINUOUS	N	sCD4-(rHXB2 gp120)-complex	murine

Donor: C. Y. Kang, IDEC Inc

References: [Kang94]

NOTES:

- MAG 97: Only observed amino acid substitution that reduces binding: 88 N/P – does not bind to C1 region 20 mer peptides, tentative classification conformationally sensitive anti-C1 MAb [Kang94]

432	MAG 104	gp120(C1 dis)	gp120(dis)	DISCONTINUOUS	N	sCD4-(rHXB2 gp120)-complex	murine

Donor: C. Y. Kang, IDEC Inc

References: [Kang94]

NOTES:

- MAG 104: Only observed amino acid substitution that reduces binding: 88 N/P and 106 E/A – does not bind to C1 region 20 mer peptides, tentative classification conformationally sensitive anti-C1 MAb [Kang94]

433	M90	gp120(C1 dis)	gp120(dis)	DISCONTINUOUS	N	451 Env	(IgG_1)

Donor: F. di Marzo Veronese

References: [Veronese92, Devico et al.(1995), Moore & Sodroski(1996)]

NOTES:

- M90: Reactive only with native gp120, so binds to a discontinuous epitope – reacts with multiple strains [Veronese92]
- M90: Reacted with both non-reduced (but not denatured) covalently cross-linked gp120-CD4 complex [Devico et al.(1995)]
- M90: Reciprocal inhibition of binding of other anti-C1 MAbs – inhibits CD4 binding site MAbs – enhances binding of V2 MAbs G3-4 and SC258 [Moore & Sodroski(1996)]

	MAb ID	Location	WEAU	Sequence	Neutralizing	Immunogen	Species(Isotype)
434	684-238	gp120(V2 dis)	gp120(dis)	DISCONTINUOUS	L	IIIB gp120 from infected cells	murine

Donor: Abbott Laboratories

References: [Moore93b, Thali93, Gorny et al.(1994), Ditzel et al.(1995), Moore & Sodroski(1996)]

NOTES:

- 684-238: Also called 52-684-238 – specific for BH10 or HXB2, does not bind to MN, RF, or SF-2 gp120 – neutralizes BH10 – binding inhibited by deletion of the V2 loop, and the following amino acid substitutions: 176/177FY/AT, 179/180LD/DL, 183/184PI/SG, and192-194YSL/GSS [Moore93b]
- 684-238: Weakly neutralizing, IC_{50}
- 684-238: Does not compete with IgG1b12, reciprocal inhibition with MAbs L39, L40, and L78 [Ditzel et al.(1995)]
- 684-238: Limited reciprocal enhancement of binding with anti-V3 and C4 region antibodies – reciprocal inhibition with V2 region antibodies [Moore & Sodroski(1996)]

435	CRA-3	gp120(V2 dis)	gp120(dis)	DISCONTINUOUS	N	rBH10 gp120	murine(IgG_{2a})

Donor: Mark Page, NIBSC

References: [Moore93a, Moore93b, Thali93, Shotton95, Moore & Sodroski(1996)]

NOTES:

- CRA-3: Conformational, does not bind well to denatured gp120 [Moore93a]
- CRA-3: specific for BH10 or HXB2, does not bind to MN, RF, or SF-2 gp120 – binding inhibited by deletion of the V2 loop, and the following amino acid substitutions: 176/177 FY/AT, 179/180 LD/DL, 183/184 PI/SG, and 192-194 YSL/GSS – epitope probably involves stem of V1/V2 loop structure [Moore93b]
- CRA-3: Many MAbs enhance binding, including some anti-C5, C1, V4, and C4 MAbs – enhances binding of only a small number of anti-V3 loop MAbs [Moore & Sodroski(1996)]
- CRA-3: Called CRA3 – Same competition group as CRA6 [Shotton95]
- CRA-3: UK Medical Research Council AIDS reagent: ARP324

436	CRA-6	gp120(V1V2 dis)	gp120(dis)	DISCONTINUOUS	N	?	murine

References: [Shotton95]

NOTES:

- CRA-6: Called CRA6 – same competition group as CRA-3 [Shotton95]

437	CRA-4	gp120(V2 dis)	gp120(dis)	DISCONTINUOUS	L (HXB2)	rBH10 gp120	murine(IgG_1)

Donor: Mark Page, NIBS, MRC AIDS reagent repository, ARP 325

References: [McKeating93a, Moore93a, Moore93b, Thali93, Shotton95, Moore & Sodroski(1996)]

NOTES:

- CRA-4: Also called CRA4
- CRA-4: Changes at residues 191/192/193 (YSL/GSS) within V2, 435 (Y/H) in C4, abrogate binding – type-specific neutralization [McKeating93a]
- CRA-4: Conformational, does not bind well to denatured gp120 [Moore93a]
- CRA-4: Specific for BH10 and HXB2, does not bind to MN, RF, or SF-2 gp120 – binding inhibited by deletion of the V2 loop, and the following amino acid substitutions: 176/177 FY/AT, 179/180 LD/DL, 183/184 PI/SG, and 192-194 YSL/GSS [Moore93b]
- CRA-4: Cross-competes with MAbs 11/68b, 62c, 66c, 66a – similar to 66c and 66a – non-reciprocal inhibition by MAbs 12b, 60b and CRA-6 [Shotton95]
- CRA-4: The only MAbs that enhanced binding were anti-V3 MAb 5G11 and anti-C1 MAb 135/9 binding – reciprocal inhibition of anti-V2 MAbs [Moore & Sodroski(1996)]
- CRA-4: UK Medical Research Council AIDS reagent: ARP325

	MAb ID	Location	WEAU	Sequence	Neutralizing	Immunogen	Species(Isotype)
438	66a	gp120(V2 dis)	gp120(dis)	DISCONTINUOUS	L (HXB2)	rBH10 gp120	murine(IgG_1)

References: [Shotton95]

NOTES:

- 66a: Substitutions 176-177 FY/AT, 179-180 LD/DL, 183-184 PI/SG, and 191-193 YSL/GSS abrogate binding – same competition group as CRA4 [Shotton95]
- 66a: UK Medical Research Council AIDS reagent: ARP3074

439	66c	gp120(V2 dis)	gp120(dis)	DISCONTINUOUS	L (HXB2)	rBH10 gp120	murine(IgG_1)

References: [Shotton95]

NOTES:

- 66c: Substitutions 176-177 FY/AT, 179-180 LD/DL, 183-184 PI/SG, and 191-193 YSL/GSS abrogate binding – same competition group as CRA4 [Shotton95]

440	11/68b	gp120(V1V2 dis)	gp120(dis)	DISCONTINUOUS	L (HXB2)	rBH10 gp120	rat(IgG_1)

Donor: Shotton and Dean

References: [McKeating93a, Shotton95]

NOTES:

- 11/68b: Changes at residues 183/184 (PI/SG) within V2, 435 (Y/H) in C4, abrogate binding [McKeating93a]
- 11/68b: 435 (Y/H) in C4 does not abrogate binding (John Moore, per comm, 1996)
- 11/68b: Cross-competes with MAbs 62c, 66c, 66a, and CRA-4 – similar to MAb 62c – HXB2 neutralization escape mutant had a D/N substitution at residue 185 – non-reciprocal inhibition of binding of CRA-3 and CRA-6 [Shotton95]
- 11/68b: UK Medical Research Council AIDS reagent: ARP3041

441	62c	gp120(V1V2 dis)	gp120(dis)	DISCONTINUOUS	N	rBH10 gp120	rat(IgG_1)

References: [Shotton95]

NOTES:

- 62c: Cross-competes with MAbs 11/68b, 66c, 66a, and CRA-4 – same cross-competition group as MAb 11/68b – non-reciprocal inhibition of binding of CRA-3 and CRA-6 – substitutions 176-177 FY/AT, 179-180 LD/DL, 183-184 PI/SG, and 191-193 YSL/GSS abrogate binding [Shotton95]
- 62c: UK Medical Research Council AIDS reagent: ARP3075

442	SC258	gp120(V2 dis)	gp120(dis)	DISCONTINUOUS	L	IIIB gp120 from infected cells	murine

Donor: Abbott Laboratories

References: [Moore93b, Thali93, Gorny et al.(1994), Yoshiyama94, Moore94b, Ditzel et al.(1995), Moore & Sodroski(1996), Trkola et al.(1996)]

NOTES:

- SC258: Also called 52-581-SC258 – binds to BH10, MN, and RF gp120 – neutralizes BH10 – binding inhibited by deletion of the V2 loop, and the following amino acid substitutions: 176/177 FY/AT, 179/180 LD/DL, 183/184 PI/SG, and 192-194 YSL/GSS [Moore93b]
- SC258: HIV-1 RF V2 substitutions 177 Y/H and 179 L/P in the V2 loop of RF reduce affinity – 177 Y/H inhibits SC258 neutralization [Yoshiyama94]
- SC258: Very poor reactivity with gp120 molecules outside of clade B [Moore94b]
- SC258: Does not compete with IgG1b12 – reciprocal inhibition with MAbs L39, L40, and L78 [Ditzel et al.(1995)]
- SC258: Several MAbs binding to various gp120 epitopes enhance binding, but the only MAb that SC258 enhanced binding of was anti-CD4 binding site MAb F91 – reciprocal inhibition with V2 region antibodies [Moore & Sodroski(1996)]
- SC258: Does not inhibit gp120 interaction with CCR-5 in a MIP-1β-CCR-5 competition study – listed as not neutralizing [Trkola et al.(1996)]

	MAb ID	Location	WEAU	Sequence	Neutralizing	Immunogen	Species(Isotype)
443	110-B	gp120(V2 dis)	gp120(dis)	DISCONTINUOUS	n	BRU infected cell lysates	mouse

Donor: Hybridolabs, Institute Pasteur, Paris, France

References: [Moore93b]

NOTES:

- 110-B: specific for BH10, does not bind to MN, RF, or SF-2 gp120 – binding inhibited by deletion of the V2 loop, and the following amino acid substitutions: 168 K/L, 176/177 FY/AT, 179/180 LD/DL, 183/184 PI/SG, and 192-194 YSL/GSS [Moore93b]

---

444 L39 gp120(V2-CD4BS dis) gp120(dis) DISCONTINUOUS N HIV-1 infection human($IgG_{1\kappa}$)

References: [Ditzel et al.(1995)]

NOTES:

- L39: This Fab does not inhibit sCD4 binding, and but is inhibited by sCD4, probably due to conformational changes – it is competed by anti-V2 MAbs, and sensitive to amino acid substitutions in the V3 loop (similar patterns were observed for L39 and L78 gp120 amino acid substitutions enhancing or reducing binding) – does not compete with CD4BS MAbs, but is sensitive to amino acid changes at positions 368 and 370 – binding unaffected by deglycosylation – reciprocal inhibition with V2 MAbs SC258 and 684-238 – heavy and light chain variable region sequence is available [Ditzel et al.(1995)]

---

445 L40 gp120(V2-CD4BS dis) gp120(dis) DISCONTINUOUS N HIV-1 infection human($IgG_{1\kappa}$)

References: [Ditzel et al.(1995)]

NOTES:

- L40: This Fab does not inhibit sCD4 binding, and but is inhibited by sCD4, probably due to conformational changes – it is competed by anti-V2 MAbs, and sensitive to amino acid substitutions in the V3 loop (similar patterns were observed for L40 and L78 gp120 amino acid substitutions enhancing or reducing binding) – does not compete with CD4BS MAbs, but is sensitive to amino acid changes at positions 368 and 370 – binding only partially affected by deglycosylation – reciprocal inhibition with V2 MAbs SC258 and 684-238 – heavy and light chain variable region sequence is available [Ditzel et al.(1995)]

---

446 L78 gp120(V2-CD4BS dis) gp120(dis) DISCONTINUOUS L HIV-1 infection human($IgG_{1\kappa}$)

References: [Ditzel et al.(1995)]

NOTES:

- L78: Substitutions at V2: (152/153 GE/SM, 183/184 PI/SG, 191/193 YL/GS), 262 N/T, V3 (314 G/W), CD4BS (257 T/R, 368 D/R, 370 E/R) inhibit binding, and some C4 and C5 substitutions enhance binding – this Fab does not inhibit sCD4 binding, and but is inhibited by sCD4, probably due to conformational changes – it is competed by anti-V2 MAbs, and sensitive to amino acid substitutions in the V3 loop – does not compete with CD4BS MAbs, but is sensitive to amino acid changes at positions 368 and 370 – Fab neutralizes MN and LAI – binding unaffected by deglycosylation – reciprocal inhibition with V2 MAbs SC258 and 684-238 – heavy and light chain variable region sequence is available [Ditzel et al.(1995)]

MAb ID	Location	WEAU	Sequence	Neutralizing	Immunogen	Species(Isotype)
447 C11	gp120(C1-C5 dis)	gp120(dis)	DISCONTINUOUS	N	HIV-1 infection	human

Donor: J. Robinson, Tulane University, LA

References: [Robinson92, Moore94c, Moore & Sodroski(1996), Trkola et al.(1996), Wu et al.(1996)]

NOTES:

- C11: Mutations that inhibit binding: C1 (45 W/S, 88 N/P) – V5 (463 N/D) – and C5 (491 I/F,493 P/K and 495 G/K) and enhance binding: C1 (36 V/L) – V1-V2 (152/153 GE/SM) – andΔV1/V2/V3 [Moore94c]
- C11: Binding enhanced by anti-V3 MAb 5G11 – reciprocal inhibition with anti-C1 MAbs [Moore & Sodroski(1996)]
- C11: Did not block ability of gp120-sCD4 complexes to inhibit MIP-1α binding – binds to gp41-binding domain [Wu et al.(1996)]
- C11: Does not neutralize JR-FL nor block gp120 interaction with CCR-5 in a MIP-1β-CCR-5 competition study [Trkola et al.(1996)]

---

448 212A	gp120(C1-C5 dis)	gp120(dis)	DISCONTINUOUS	N	HIV-1 infection	human

Donor: J. Robinson, Tulane University, LA

References: [Robinson92, Moore94c, Moore & Sodroski(1996)]

NOTES:

- 212A: Mutations that inhibit binding: C1 (45 W/S) and V5 (463 N/D) – and enhance binding: V2 (179/180 LD/DL) and C5 (495 G/K) [Moore94c]
- 212A: binding enhanced by anti-V3 MAb 5G11 – reciprocal inhibition with anti-C1 MAbs [Moore & Sodroski(1996)]

---

449 2G12	gp120(V3-C4 dis)	gp120(dis)	DISCONTINUOUS	P L	HIV-1 infection	human(IgG$_{1\kappa}$)

Donor: H. Katinger, Inst. Appl. Microbiol., Vienna, Austria

References: [Buchacher94, Trkola95a, Moore & Ho(1995), Trkola96, Moore & Sodroski(1996), Poignard et al.(1996b), Trkola et al.(1996), Sattentau(1996)]

NOTES:

- 2G12: Human MAb generated by electrofusion of PBLs from HIV-1+ volunteers with CB-F7 cells [Buchacher94]
- 2G12: Highly potent Cross-clade neutralizing activity [Trkola95a]
- 2G12: Conformationally sensitive epitope destroyed by mutations altering the N-linked glycosylation sites near the base of the V3 loop and the amino-terminal flank of the V4 loop [Trkola96]
- 2G12: Binding weakly enhanced by some anti-C1, -C4, -V3, and CD4 binding site MAbs – unusual in that 2G12 binding neither enhanced or inhibited the binding of other MAbs included in the study [Moore & Sodroski(1996)]
- 2G12: Review: binding site is distinct from CD4BS MAbs epitope and is unique among known gp120 MAbs, human or rodent [Moore & Ho(1995)]
- 2G12: Review: exceptional capacity to neutralize primary isolates in terms of both breadth and potency – one of three MAbs (IgG1b12, 2G12, and 2F5) generally accepted as having significant potency against primary isolates [Poignard et al.(1996b)]
- 2G12: Neutralizes JR-FL – inhibits gp120 interaction with CCR-5 in a MIP-1β-CCR-5 competition study [Trkola et al.(1996)]
- 2G12: Review: Only four epitopes have been described which can stimulate a useful neutralizing response to a broad spectrum of primary isolates, represented by the binding sites of MAbs: 447-52-D, 2G12, Fab b12, and 2F5 [Sattentau(1996)]
- 2G12: UK Medical Research council AIDS reagent: ARP3030

---

450 SUMMARY CD4BS	gp120(CD4BS dis)	gp120(dis)	DISCONTINUOUS

References: [Thali93, Moore & Sodroski(1996)]

NOTES:

- CD4BS: Shared components of MAb epitopes and the discontinuous CD4 binding regions included Thr 257, Asp 368, Glu 370, Lys 421 through Trp 427 and Asp 457 [Thali93]
- CD4BS: Anti-CD4 binding site antibodies (CD4BS) competitively inhibit CD4 binding to monomeric gp120, and they differ in precise dependence on gp120 residues, but generally require Asp-368 and Glu-370 [Moore & Sodroski(1996)]

	MAb ID	Location	WEAU	Sequence	Neutralizing	Immunogen	Species(Isotype)
451	588-D	gp120(CD4BS dis)	gp120(dis)	DISCONTINUOUS	L	HIV-1 infection	human($IgG_{1\kappa}$)

Donor: Susan Zolla-Pazner, NYU Med Center, NY, NY

References: [Karwowska92, Buchbinder et al.(1992), Moore93a]

NOTES:

- 588-D: Conformational – reactive with IIIB gp120 in RIP, but not WB assay [Karwowska92]
- 588-D: 4-fold increase in neutralization potency for 588-D when combined 1:1 with human MAb 447-D [Buchbinder et al.(1992)]
- 588-D: Weak neutralization of IIIB – strong inhibition of HIV+ human sera binding to IIIB gp120 [Moore93a]

452	BM12	gp120(CD4BS dis)	gp120(dis)	DISCONTINUOUS	L	HIV-1 infection	human

References: [Kessler95]

NOTES:

- BM12: Broad cross-clade neutralization of primary isolates – additive effect in combination with MAb 2F5 [Kessler95]

453	654-D	gp120(CD4BS dis)	gp120(dis)	DISCONTINUOUS	N	HIV-1 infection	human(IgG_{κ})

Donor: Susan Zolla-Pazner, NYU Med Center, NY, NY

References: [Karwowska93, Gorny et al.(1994)]

NOTES:

- 654-D: Mild oxidation of carbohydrate moieties inhibits binding [Gorny et al.(1994)]

454	S1-1	gp120(CD4BS dis)	gp120(dis)	DISCONTINUOUS	L	HIV-1 infection	human($IgG_{1\lambda}$)

References: [Lake et al.(1992), Moran et al.(1993)]

NOTES:

- S1-1: Neutralizes IIIB and MN without complement, and neutralizes RF and a clinical isolate with complement – binds to native but not denatured gp120 – inhibits sCD4-gp120 binding [Lake et al.(1992)]
- S1-1: Heavy (V_HI) and light (V_λIII) chain sequenced – no enhancing activity – similar germline sequence to MAb 86, but very different activity [Moran et al.(1993)]

455	559/64-D	gp120(CD4BS dis)	gp120(dis)	DISCONTINUOUS	L	HIV-1 infection	human($IgG_{1\kappa}$)

Donor: Susan Zolla-Pazner, NYU Med Center, NY, NY

References: [Karwowska92, McKeating et al.(1992), Spear et al.(1993), Forthal et al.(1995)]

NOTES:

- 559/64-D: Conformational – reactive with IIIB gp120 in RIP, but not WB assay [Karwowska92]
- 559/64-D: Did not mediate deposition of complement component C3 on HIV infected cells [Spear et al.(1993)]
- 559/64-D: Neutralizing activity, no ADCC activity, and no viral enhancing activity [Forthal et al.(1995)]

456	558-D	gp120(CD4BS dis)	gp120(dis)	DISCONTINUOUS	L	HIV-1 infection	human

Donor: Susan Zolla-Pazner, NYU Med Center, NY, NY

References: [McKeating et al.(1992)]

NOTES:

- 558-D: Blocks gp120-CD4 binding – binds a panel of mutants all except for 256 S/Y and 262 N/T, which are probably conformationally disruptive [McKeating et al.(1992)]

	MAb ID	Location	WEAU	Sequence	Neutralizing	Immunogen	Species(Isotype)
457	448-D	gp120(CD4BS dis)	gp120(dis)	DISCONTINUOUS	L	HIV-1 infection	human($IgG_{1\lambda}$)

Donor: Susan Zolla-Pazner, NYU Med Center, NY, NY

References: [Karwowska92, McKeating et al.(1992), Spear et al.(1993), Forthal et al.(1995)]

NOTES:

- 448-D: Conformational – reactive with IIIB gp120 in RIP, but not WB assay [Karwowska92]
- 448-D: Called 448D – blocks gp120-CD4 binding – substitutions at gp120 residues 88, 113, 117, 257, 368 and 370 reduce binding – epitope similar to rat MAbs 39.13g and 39.3b [McKeating et al.(1992)]
- 448-D: Did not mediate deposition of complement component C3 on HIV infected cells [Spear et al.(1993)]
- 448-D: Neutralizing activity, positive ADCC activity, and no viral enhancing activity [Forthal et al.(1995)]

458	HF1.7	gp120(CD4BS dis)	gp120(dis)	DISCONTINUOUS	L	purified anti-Leu-3a mAb	murine(IgM)

References: [Chanh et al.(1987)]

NOTES:

- HF1.7: An anti-Id antibody, stimulated by anti-CD4 MAb Leu-3a, binds a recombinant gp160, suggesting HF1.7 mimics CD4 [Chanh et al.(1987)]

459	D20	gp120(CD4BS dis)	gp120(dis)	DISCONTINUOUS	L	vaccinia expressed oligomeric gp140 IIIB	murine(IgG)

References: [Broder et al.(1994)]

NOTES:

- D20: Binding completely blocked by pooled human sera [Broder et al.(1994)]

460	50-61A	gp120(CD4BS dis)	gp120(dis)	DISCONTINUOUS	L	HIV-1 infection	human(IgG_{κ})

References: [Fevrier et al.(1995)]

NOTES:

- 50-61A: Neutralizes lab strains LAI and SF2 – competes with sera from 45 seropositive subjects – binding affinity 2.4 x 10^{-10} M [Fevrier et al.(1995)]

461	48-16	gp120(CD4BS dis)	gp120(dis)	DISCONTINUOUS	N	HIV-1 infection	human(IgG_{κ})

References: [Fevrier et al.(1995)]

NOTES:

- 48-16: Broadly cross-reactive, reacts outside the CD4 binding site and V3 region – competes with sera from 45 seropositive subjects – binding affinity 2-5 x 10^{-9} M [Fevrier et al.(1995)]

462	L41	gp120(CD4BS dis)	gp120(dis)	DISCONTINUOUS	L	HIV-1 infection	human($IgG_{1\kappa}$)

References: [Ditzel et al.(1995)]

NOTES:

- L41: Substitutions at 133 D/R, 256 S/Y, 257 T/R, 368 D/R or D/T, 370 E/Q or E/R, 384 Y/E, and 421 K/L reduce binding – paradoxically, this Fab was retrieved from the library after masking with known anti-CD4BS MAbs – binding is sensitive to deglycosylation – heavy and light chain variable region sequence is available [Ditzel et al.(1995)]

463	L28	gp120(CD4BS dis)	gp120(dis)	DISCONTINUOUS	L	HIV-1 infection	human($IgG_{1\kappa}$)

References: [Ditzel et al.(1995)]

NOTES:

- L28: Substitutions at 257 T/R, 368 D/R, 370 E/R and 370 E/Q, 475 M/S 102 E/L and 463 N/D reduce binding – binding was enhanced by removal of the V3 loop and by substitutions 45 W/S, 298 R/G, 381 E/P, 382 F/L, 420 I/R, 435 Y/H or Y/R – binding is sensitive to deglycosylation – heavy and light chain variable region sequence is available [Ditzel et al.(1995)]

	MAb ID	Location	WEAU	Sequence	Neutralizing	Immunogen	Species(Isotype)
464	L33	gp120(CD4BS dis)	gp120(dis)	DISCONTINUOUS	L	HIV-1 infection	human($IgG_{1\kappa}$)

References: [Ditzel et al.(1995)]

NOTES:

- L33: binding is sensitive to deglycosylation – heavy and light chain variable region sequence is available [Ditzel et al.(1995)]

465	L42	gp120(CD4BS dis)	gp120(dis)	DISCONTINUOUS	L	HIV-1 infection	human($IgG_{1\kappa}$)

References: [Ditzel et al.(1995)]

NOTES:

- L42: Substitutions at 257 T/R, 368 D/R, 370 E/R, 266 A/E and 477 D/V reduce binding – binding was significantly enhanced by 381 E/P and 382 F/L – binding is sensitive to deglycosylation – heavy and light chain variable region sequence is available [Ditzel et al.(1995)]

466	L52	gp120(CD4BS dis)	gp120(dis)	DISCONTINUOUS	L	HIV-1 infection	human($IgG_{1\kappa}$)

References: [Ditzel et al.(1995)]

NOTES:

- L52: Binding is sensitive to deglycosylation – heavy and light chain variable region sequence is available [Ditzel et al.(1995)]

467	GP13	gp120(CD4BS dis)	gp120(dis)	DISCONTINUOUS	L	HIV-1 infection	human(IgG_1)

References: [Schutten et al.(1993), Schutten et al.(1995), Back et al.(1993)]

NOTES:

- GP13: Neutralized a broad range of HIV-1 strains from phylogenetically different subfamilies – the following gp120 amino acid substitutions strongly inhibit binding: 256(S/Y), 257(T/G), 262(N/T), 368(D/R or K), 370(E/R or Q or D), 384(Y/E) [Schutten et al.(1993)]
- GP13: Mutations in a neutralization resistant isolate obtained by passage of the IIIB isolate in chimpanzees reduced neutralization, but the escape was not as clear as seen with anti-V3 MAbs [Back et al.(1993)]
- GP13: Neutralizes IIIB – only slight inhibition of SI phenotype, and strong enhancement of NSI phenotype chimeric viruses, that incorporated different envs from the same donor [Schutten et al.(1995)]
- GP13: UK Medical Research council AIDS reagent: ARP3054

468	GP44	gp120(CD4BS dis)	gp120(dis)	DISCONTINUOUS	L	HIV-1 infection	human(IgG1)

References: [Schutten et al.(1993)]

NOTES:

- GP44: Exhibited a more restricted pattern of neutralizing activity than GP13 and GP68 – the following gp120 amino acid substitutions strongly inhibit binding: 256(S/Y), 257(T/G), 262(N/T), 368(D/R or K), 370(E/R or Q or D) [Schutten et al.(1993)]

469	GP68	gp120(CD4BS dis)	gp120(dis)	DISCONTINUOUS	L	HIV-1 infection	human(IgG1)

References: [Schutten et al.(1993), Klasse et al.(1993a), Schutten et al.(1995)]

NOTES:

- GP68: Neutralized a broad range of HIV-1 lab strains from phylogenetically different subfamilies – the following gp120 amino acid substitutions strongly inhibit binding: 117(K/W), 256(S/Y), 257(T/G), 262(N/T), 368(D/R or K), 370(E/R or Q), 384(Y/E), 435(Y/H) [Schutten et al.(1993)]
- GP68: The gp41 mutation 582(Ala to Thr) results in conformational changes in gp120 that confer neutralization resistance to a class of conformation sensitive neutralizing MAbs – GP68 required markedly higher concentrations to neutralize the mutant than wild type [Klasse et al.(1993a)]
- GP68: Neutralizes IIIB – only slight inhibition of SI phenotype, and strong enhancement of NSI phenotype chimeric viruses, that incorporated different envs from the same donor [Schutten et al.(1995)]
- GP68: UK Medical Research Council AIDS reagent: ARP3055

	MAb ID	Location	WEAU	Sequence	Neutralizing	Immunogen	Species(Isotype)
470	ICR 39.13g	gp120(CD4BS dis)	gp120(dis)	DISCONTINUOUS	L	rgp120 BH10	rat(IgG_{2b})

Donor: Jackie Cordell and C. Dean

References: [Cordell91, McKeating92a, McKeating et al.(1992), McKeating93a, Moore93a, Thali93, Klasse et al.(1993a), McLain & Dimmock(1994), Beretta & Dalgleish(1994)]

NOTES:

- ICR 39.13g: also known as ICR39.13g
- ICR 39.13g: Cross-competes with MAbs ICR 39.3b and 15e [Cordell91]
- ICR 39.13g: Binds to a conformational epitope involved in CD4 binding – exerts a synergistic effect in combination with V3 directed MAbs [McKeating92a]
- ICR 39.13g: Neutralization activity against HXB10, RF, SF-2 and MN strains of HIV-1 [McKeating93a]
- ICR 39.13g: Conformational, doesn't bind denatured gp120 – weak neutralization of IIIB – strong inhibition of HIV+ human sera binding to IIIB gp120 [Moore93a]
- ICR 39.13g: Strongly inhibits CD4 inducible MAb 48d [Thali93]
- ICR 39.13g: Kinetics of neutralization studied – no lag for 39.3b, while ICR 39.13g and ICR 41.1i have lags of 5 and 15 min respectively – mediates neutralization with 2.3 molecules of IgG [McLain & Dimmock(1994)]
- ICR 39.13g: The gp41 mutation 582(Ala to Thr) results in conformational changes in gp120 that confer neutralization resistance to a class of conformation sensitive neutralizing MAbs – ICR 39.13g required moderately higher concentrations to neutralize the mutant than wild type [Klasse et al.(1993a)]
- ICR 39.13g: UK Medical Research Council AIDS reagent: ARP390

471	ICR 39.3b	gp120(CD4BS dis)	gp120(dis)	DISCONTINUOUS	L	rgp120 BH10	rat(IgG_{2b})

Donor: J. Cordell and C. Dean

References: [Cordell91, McKeating et al.(1992), Moore93c, McLain & Dimmock(1994)]

NOTES:

- ICR 39.3b: also known as 39.3b and ICR39.3b
- ICR 39.3b: Cross-competes with MAbs ICR 39.13g and 15e [Cordell91]
- ICR 39.3b: Conformational, doesn't bind to denatured IIIB [Moore93a]
- ICR 39.3b: Kinetics of neutralization studied – no lag for 39.3b, while ICR 39.13g and ICR 41.1i have lags of 5 and 15 min respectively [McLain & Dimmock(1994)]
- ICR 39.3b: UK Medical Research Council AIDS reagent: ARP391

	MAb ID	Location	WEAU	Sequence	Neutralizing	Immunogen	Species(Isotype)
472	15e	gp120(CD4BS dis)	gp120(dis)	DISCONTINUOUS	L	HIV-1 infection	human($IgG_{1\kappa}$)

Donor: J. Robinson, Tulane University, LA, and David Ho, ADARC, NY, NY

References: [Robinson et al.(1990), Thali91, Cordell91, Ho91a, Koup91, Ho92, Wyatt92, Thali92a, Takeda et al.(1992), Moore93a, Thali93, Wyatt93, Bagley et al.(1994), Thali94, Cook et al.(1994), Moore94b, Moore94d, Sattentau95a, Lee et al.(1995), Moore & Sodroski(1996), Poignard et al.(1996a), Trkola et al.(1996), McDougal96]

NOTES:

- 15e: Also called 1.5e and 15E – original paradigm for this type of antibody
- 15e: Broadly neutralizing, binds multiple strains, competes with CD4 for gp120 binding, DTT reduction of env abrogates binding – more potent blocking of gp120-sCD4 binding than MAbs G3-536 and G3-537 [Ho91a]
- 15e: Cross-competes with MAbs ICR 39.13g and ICR 39.3b [Cordell91]
- 15e: Binds to gp120 of HIV-1 IIIB, but not RF – mediates ADCC – deletion of the V3 loop from gp120 does not alter ADCC activity [Koup91]
- 15e: gp120 mutants that affect 15e epitope binding: 113, 257, 368, 370, 421, 427, 475 – four of these coincide with amino acids important for the CD4 binding domain [Ho92]
- 15e: Precipitation of Δ 297-329 env glycoprotein, with a deleted V3 loop, is much more efficient that precipitation of wild type [Wyatt92]
- 15e: amino acid substitutions in HXB2 that strongly inhibit binding, similar to [Ho92], some additional, 88, 102, 117, 113, 257, 368, 370, 421, 427, 457, 470, 480 [Thali92a]
- 15e: Called N70-1.5e – does not enhance infection of HIV-1 IIIB and MN [Thali92a]
- 15e: Conformational, doesn't bind denatured gp120 – neutralizes IIIB – reactive with SF-2 gp120 – strong inhibition of HIV+ human sera binding to IIIB gp120 [Moore93a]
- 15e: Binding to Δ V1/2 and Δ V1/2/3 mutant glycoproteins is greater than binding to wildtype gp120 [Wyatt93]
- 15e: Called 15E – a neutralization escape mutant (HXB2 A281V) was selected by growth of HXB2 in the presence of broadly neutralizing sera – 15E neutralization was not affected by this mutation [Watkins93]
- 15e: Heavy chain is V_HIV, V2-1 – light chain is V_κI, Hum01/012. Compared to 21h and F105 [Bagley et al.(1994)]
- 15e: A mutation in gp41, 582 A/T, confers resistance to neutralization (also confers resistance to MAbs F105, 48d, 21h and 17b) [Thali94]
- 15e: MAbs against the glycosphingolipid GalCer block HIV infection of normally susceptible CD4 negative cells from the brain and colon – anti-CD4 MAbs moderately inhibit gp120 binding to GalCer, possibly through steric hindrance – binding of GalCer to gp120 inhibited but did not completely block 15e binding [Cook et al.(1994)]
- 15e: Cross-reactive with gp120 proteins from clades B and D, less so with A and C, and not reactive with clade E and F [Moore94b]
- 15e: Binds with higher affinity to monomer than to oligomer, moderate association rate [Sattentau95a]
- 15e: The V4 and V5 domains are essential for 1.5e binding, in contrast to the V1, V2, and V3 loops [Lee et al.(1995)]
- 15e: gp120 binding enhanced by anti-V3 MAb 5G11 and anti-V2 MAb G3-136 – binding inhibited by other CD4 binding site MAbs, antibodies that bind to gp120 only when CD4 is bound, and CD4-IgG [Moore & Sodroski(1996)]
- 15e: Anti-CD4BS MAbs 15e, 21h, and IgG1b12 did not cause gp120 dissociation from virus, or exposure of the gp41 epitope of MAb 50-69, in contrast to CD4i MAb 48d and anti-V3 neutralizing MAbs [Poignard et al.(1996a)]
- 15e: Inhibits gp120 interaction with CCR-5 in a MIP-1β-CCR-5 competition study [Trkola et al.(1996)]
- 15e: Neutralizes HIV-1 LAI less potently than V3 specific MAbs [McDougal96]
- 15e: UK Medical Research Council AIDS reagent: ARP3016

	MAb ID	Location	WEAU	Sequence	Neutralizing	Immunogen	Species(Isotype)
473	1125H	gp120(CD4BS dis)	gp120(dis)	DISCONTINUOUS	L	HIV-1 infection	human($IgG_{1\kappa}$)

References: [Tilley91, Tilley et al.(1991), Thali92a, Wyatt92, Pinter93a, Warrier96]

NOTES:

- 1125H: Binding to gp120 inhibited by CD4 – epitope is destroyed by reduction, but not by removal of N-linked sugars – potent neutralization of MN, RF, SF-2 and IIIB – neutralization synergy with anti-V3 MAb 4117C [Tilley et al.(1991)]
- 1125H: Amino acid substitutions in HXB2 that strongly inhibit binding: 88, 102, 117, 113, 257, 368, 370, 421, 427, 457, 470, 480[Thali92a]
- 1125H: Binding to soluble gp120 enhanced by the presence of an anti-V3 HuMAb, 41148D [Pinter93a]
- 1125H: Precipitation of Δ 297-329 env glycoprotein, with has a deleted V3 loop, is much more efficient that precipitation of wild type [Wyatt92]
- 1125H: Synergistic neutralization of HIV-1 when combined with anti-V2 MAb C108G [Warrier96]

474	5145A	gp120(CD4BS dis)	gp120(dis)	DISCONTINUOUS	L	HIV-1 infection	human

References: [Pinter93, Warrier96]

NOTES:

- 5145A: Potent and broadly cross-reactive neutralization of lab strains [Pinter93]
- 5145A: Synergistic neutralization of HIV-1 when combined with anti-V2 MAb C108G [Warrier96]

475	21h	gp120(CD4BS dis)	gp120(dis)	DISCONTINUOUS	L P	HIV-1 infection	human

Donor: J. Robinson, Tulane University, LA

References: [Ho91a, Thali92a, Ho92, Wyatt93, Moore93a, Moore94b, Moore94d, Bagley et al.(1994), Thali94, Sattentau95a, Moore & Sodroski(1996), Poignard et al.(1996a)]

NOTES:

- 21h: Amino acid substitutions in HXB2 that inhibit binding, some shared with CD4 binding inhibition, 88, 113, 257, 368, 370, 421, 470, 480 [Thali92a]
- 21h: Binding to Δ V1/2 and Δ V1/2/3 mutant glycoproteins is greater than binding to wildtype gp120 [Wyatt93]
- 21h: Conformational, doesn't bind denatured gp120 – neutralizes IIIB – reactive with SF-2 gp120 – strong inhibition of HIV+ human sera binding to IIIB gp120 [Moore93a]
- 21h: Has strong cross-reactivity with gp120 monomers from most subtypes, A-F, with the least reactivity to clade E [Moore94b]
- 21h: Competition studies with human sera from seroconverting individuals showed that anti-CD4 BS antibodies can arise very early in infection, comparable or prior to anti-V3 antibodies [Moore94d]
- 21h: Heavy chain is V_HIII, VDP-35 – light chain is V_λIIIa, Hum318. Compared to 15e and F105 [Bagley et al.(1994)]
- 21h: A mutation in gp41, 582 A/T, confers resistance to neutralization (also confers resistance to MAbs F105, 48d, 15e and 17b) [Thali94]
- 21h: Binds with higher affinity to monomer than to oligomer, moderate association rate [Sattentau95a]
- 21h: Anti-CD4 binding site MAb – reciprocal inhibition by anti-C1, -C4 and other anti-CD4 binding site antibodies – enhanced by some anti-V2 MAbs and anti-V3 MAb 5G11 – enhances binding of some anti-V3 and -V2 MAbs [Moore & Sodroski(1996)]
- 21h: Anti-CD4BS MAbs 15e, 21h, and IgG1b12 did not cause gp120 dissociation from virus, or exposure of the gp41 epitope of MAb 50-69, in contrast to CD4i MAb 48d and anti-V3 neutralizing MAbs [Poignard et al.(1996a)]
- 21h: UK Medical Research Council AIDS reagent: ARP3017

	MAb ID	Location	WEAU	Sequence	Neutralizing	Immunogen	Species(Isotype)
476	F105	gp120(CD4BS dis)	gp120(dis)	DISCONTINUOUS	L	HIV-1 infection	human($IgG_{1\kappa}$)

Donor: Marshall Posner

References: [Posner91, Thali91, Thali92a, Marasco et al.(1992), Wyatt92, Posner et al.(1992b), Posner et al.(1992a), Moore93a, Posner et al.(1993), Cavacini93, Cavacini93a, Wyatt93, Montefiori et al.(1993), Potts et al.(1993), Klasse et al.(1993a), Watkins93, Bagley et al.(1994), Thali94, Cook et al.(1994), Cavacini94, Cavacini94a, Posner95, Cavacini95, Sullivan et al.(1995), Wolfe96, McDougal96]

NOTES:

- F105: First description of F105, binds topographically near the CD4-binding site – inhibits binding of free, infectious virions to uninfected HT-H9 cells, but does not react with virus adsorbed to uninfected HT-H9 cells – soluble rCD4 pre-bound to infected cells inhibits F105 binding – F105 inhibits infection of HT-H9 cells in standard neutralization assays with HIV-1 and MN strains [Posner91]
- F105: Neutralization escape mutants result from changes in amino acids in four discontinuous regions: C2, 256-262; C3, 386,370; C4, 421; and C5, 470, 475, 477, 482-484 of gp120 HXBc2 – anti-CD4 binding site (CD4BS) antibody [Thali91]
- F105: Amino acid substitutions that impair F105 neutralization inhibit gp120-CD4 interaction [Thali92a]
- F105: MAb's cDNA sequence – V_H4 V71-4 rearranged with a D_H D-D fusion product of dlr4 and da4, and with J_{H5} – V_κ is from the *Humvk325* germline gene joined with $J\kappa 2$ [Marasco et al.(1992)]
- F105: Precipitation of Δ 297-329 env glycoprotein, with has a deleted V3 loop, is much more efficient that precipitation of wild type [Wyatt92]
- F105: F105 mediates ADCC against SF2 through the CD16+ population of PBMC – does not mediate complement-dependent cytotoxicity [Posner et al.(1992b)]
- F105: Significant enhancement of F105 binding to RF infected cells preincubated with V3-specific MAbs V3-2 and V3-1 [Posner et al.(1992a)]
- F105: Called F-105 – neutralizes IIIB – strong inhibition of HIV+ human sera binding to IIIB gp120 [Moore93a]
- F105: F105 to binds and neutralizes selected lab strains and 3/9 HIV-1 primary isolates – synergistic enhancement of neutralization by seropositive sera [Posner et al.(1993)]
- F105: No neutralization of primary isolates observed (John Moore, pers comm)
- F105: Additive MN or SF2 neutralization when combined with anti-V3 MAbs 447-52D and 257-D [Cavacini93]
- F105: Serum from all asymptomatic HIV-1 positive people tested block F105 binding, but only from 27% of symptomatic individuals [Cavacini93a]
- F105: Binding to Δ V1/2 and Δ V1/2/3 mutant glycoproteins is 2.4- and 13-fold greater, respectively, than binding to wild-type gp120 [Wyatt93]
- F105: Study of synergism between F105 and sera from vaccinated volunteers with V3-loop specific neutralization activity – 2/3 sera demonstrated neutralization synergy, and 3/3 binding/fusion-inhibition synergy [Montefiori et al.(1993)]
- F105: Study of synergism of neutralization and binding comparing F105 and sCD4 with the V3 MAbs: 50.1, 59.1, 83.1, and 58.2 – synergy was observed, and the data suggest that binding of one ligand (F105) can increase the binding of the second (*e. g.* V3 loop MAbs) due to conformational changes [Potts et al.(1993)]
- F105: The gp41 mutation 582(Ala to Thr) results in conformational changes in gp120 that confer neutralization resistance to a class of conformation sensitive neutralizing MAbs – required > 81 fold higher concentrations to neutralize the mutant than wild type [Klasse et al.(1993a)]
- F105: A neutralization escape mutant (HXB2 A281V) was selected by growth of HXB2 in the presence of broadly neutralizing sera – F105 neutralization was not affected by this mutation [Watkins93]
- F105: Comparison of MAb F105 sequences with those of MAbs 21h and 15e [Bagley et al.(1994)]
- F105: A mutation in gp41, 582 A/T, confers resistance to neutralization (also confers resistance to MABs 48d, 21h, 15e and 17b) [Thali94]
- F105: MAbs against the glycosphingolipid GalCer block HIV infection of normally susceptible CD4 negative cells from the brain and colon – anti-CD4 MAbs moderately inhibit gp120 binding to GalCer, possibly through steric hindrance – binding of GalCer to gp120 inhibited but did not completely block F105 binding[Cook et al.(1994)]
- F105: Administered intravenously to four cynomolgus monkeys, plasma pharmacokinetics and biological activity tested [Cavacini94]
- F105: Fab fragments show reduced capacity to neutralize IIIB, MN, and RF compared to intact IgG_1, suggesting bivalent interaction may be important in binding and neutralization [Cavacini94a]
- F105: Eight patient phase Ia trial for use as an immunotherapeutic – no clinical or biochemical side effects observed, plasma levels $\geq$ of 10 μg/ml maintained for 21 days [Posner95]

MAb ID	Location	WEAU	Sequence	Neutralizing	Immunogen	Species(Isotype)

- F105: Efficient neutralization of T-cell adapted lines HXBc2 and MN, no neutralization of primary isolates 89.6, ADA and YU2 – even some enhancement of infection of ADA and YU2 [Sullivan et al.(1995)]
- F105: Changing heavy chain from IgG_1 to IgG_3 increased neutralization efficiency [Cavacini95]
- F105: Phase I study – MAb clearance in plasma has a 13 day half-life [Wolfe96]
- F105: Neutralizes HIV-1 LAI less potently than V3 specific MAbs [McDougal96]
- F105: NIH AIDS Research and Reference Reagent Program: 857

477	IgG1b12	gp120(CD4BS dis)	gp120(dis)	DISCONTINUOUS	L P	HIV-1 infection	human(IgG_1)

Donor: D. Burton, Scripps Research Insitute, La Jolla, CA

References: [Burton et al.(1991), Barbas92, Roben94, Burton94, Moore94b, Moore95b, Moore & Ho(1995), Trkola95a, Ditzel et al.(1995), Sullivan et al.(1995), Moore & Sodroski(1996), Gauduin et al.(1996), Poignard et al.(1996b), Poignard et al.(1996a), Trkola et al.(1996), Sattentau(1996)]

NOTES:

- IgG1b12: Fab b12 and IgG1b12 (also called IgG1-b12 IgG1 b12)
- IgG1b12: The original Fab fragment was derived from a combinatorial phage library from bone marrow of an HIV-1 positive individual [Burton et al.(1991)]
- IgG1b12: Anti-CD4 binding site Fab, potent neutralizing activity, greater affinity for a subpopulation of gp120 molecules suggested to be in a mature confirmation – mutations in gp120 that abrogate binding: 368 D/R or D/T, 370 E/R, and 477 D/V, of clone HXBc2 of LAI – sensitive to V1 and V2 substitutions [Roben94]
- IgG1b12: Very potent neutralization, of primary and lab strains, at concentrations that could be achieved by passive immunization – reduced binding with A,C, and D clade viruses relative to B clade, poor reactivity with E clade [Burton94]
- IgG1b12: Cross-reactive with some gp120s, (but not all), from clades A-D – not reactive with gp120 from clades E or F [Moore94b]
- IgG1b12: Anti-CD4 binding site MAb – very potent neutralization of a number of primary isolates [Moore95b]
- IgG1b12: Called BM12 – broad cross-clade neutralization of primary isolates – additive neutralization in combination with anti-CD4BS MAb 2F5 [Kessler95]
- IgG1b12: Review: unusual properties for anti-CD4 BS MAb: sensitive to V2 substitutions, preferential recognition of the oligomer on the cell surface [Moore & Ho(1995)]
- IgG1b12: Could potently neutralize primary isolates from within clade B, but showed a slight reduction in efficacy outside of clade B [Trkola95a]
- IgG1b12: Because of this Fab's reduction in binding when the V2 loop is deleted and when aa 183/184 PI/SG substitutions are made [Roben94], competition studies were done with Fab L78 anti-V2 MAbs SC258 and 684-238; no competition was observed – b12 binding is glycosylation dependent and abrogated by denaturation. [Ditzel et al.(1995)]
- IgG1b12: Fab b12 showed potent neutralization of T-cell-line-adapted strains, but much reduced neutralization of 3 primary isolates – 2 of the 3 primary isolates also had reduced binding affinity, but the third was as efficiently immunoprecipitated as HXBc2 [Sullivan et al.(1995)]
- IgG1b12: Potent neutralizing *ex vivo* of virus taken directly from plasma of HIV-1 infected individuals – little correlation between neutralization sensitivity of passaged virus and plasma derived virus – more effective than MAb 19b [Gauduin et al.(1996)]
- IgG1b12: Review: Unique among anti-CD4BS MAbs in terms of being potent against both lab adapted virus and primary isolates – one of three MAbs (IgG1b12, 2G12, and 2F5) generally accepted as having significant potency against primary isolates [Poignard et al.(1996b)]
- IgG1b12: Anti-CD4BS MAbs 15e, 21h, and IgG1b12 did not cause gp120 dissociation from virus, or exposure of the gp41 epitope of MAb 50-69, in contrast to CD4i MAb 48d and anti-V3 neutralizing MAbs [Poignard et al.(1996a)]
- IgG1b12: Neutralizes JR-FL – inhibits gp120 interaction with CCR-5 in a MIP-1β-CCR-5 competition study [Trkola et al.(1996)]
- IgG1b12: Review: Only four epitopes have been described which can stimulate a useful neutralizing response to a broad spectrum of primary isolates, represented by the binding sites of MAbs: 447-52-D, 2G12, Fab b12, and 2F5 [Sattentau(1996)]
- IgG1b12: UK Medical Research Council AIDS reagent: ARP3065
- IgG1b12: NIH AIDS Research and Reference Reagent Program: 2640

	MAb ID	Location	WEAU	Sequence	Neutralizing	Immunogen	Species(Isotype)
478	F91	gp120(CD4BS dis)	gp120(dis)	DISCONTINUOUS			

Donor: J. Robinson, Tulane University, LA

References: [Moore93a, Moore94b, Moore & Sodroski(1996)]

NOTES:

- F91: Called F-91 – neutralizes IIIB – reactive with SF-2 gp120 – strong inhibition of HIV+ human sera binding to IIIB gp120 [Moore93a]
- F91: Has strong cross-reactivity with gp120 monomers from most subtypes,
- F91: Unusual pattern of reciprocal enhancement with several anti-V2 and V3 directed MAbs – reciprocal inhibition of other CD4BS MAbs [Moore & Sodroski(1996)]

479	HT6	gp120(CD4BS dis)	gp120(dis)	DISCONTINUOUS	L(weak)	HIV-1 infection	human

Donor: Ciba-Geigy AG (Basel, Switzerland)

References: [Moore95b]

NOTES:

- HT6: HT6, HT5, and HT7 are also known as 205-46-9, 205-42-15, and 205-43-1
- HT6: Despite highly cross-reactive binding to many primary and T-cell adapted viral strains, only weakly neutralizes IIIB and MN [Moore95b]
- HT6: 205-46-9 was cross-reactive across clades A-F, 205-43-1 was not [Moore94b]

480	HT5	gp120(CD4BS dis)	gp120(dis)	DISCONTINUOUS	L(weak)	HIV-1 infection	human

Donor: Ciba-Geigy AG (Basel, Switzerland)

References: [Moore95b]

NOTES:

- HT5: HT6, HT5, and HT7 are also known as 205-46-9, 205-42-15, and 205-43-1 (John Moore, per comm)
- HT5: Despite highly cross-reactive binding to many primary and T-cell adapted viral strains, only weakly neutralizes IIIB and MN [Moore95b]
- HT5: 205-46-9 was cross-reactive across clades A-F, 205-43-1 was not [Moore94b]

481	HT7	gp120(CD4BS dis)	gp120(dis)	DISCONTINUOUS	L(IIIB)	HIV-1 infection	human

Donor: Ciba-Geigy AG (Basel, Switzerland)

References: [Moore95b]

NOTES:

- HT7: HT6, HT5, and HT7 are also known as 205-46-9, 205-42-15, and 205-43-1
- HT7: Despite highly cross-reactive binding to many primary and T-cell adapted viral strains, only neutralizes IIIB well, with sporadic weak neutralization of other isolates [Moore95b]
- HT7: HT6: 205-46-9 was cross-reactive across clades A-F, 205-43-1 was not [Moore94b]

482	MAG 55	gp120(CD4BS dis)	gp120(dis)	DISCONTINUOUS	L	sCD4-(rHXB2 gp120)-complex	murine

Donor: C. Y. Kang, IDEC Inc

References: [Kang94, Moore & Sodroski(1996)]

NOTES:

- MAG 55: Amino acid substitutions that reduce binding 10 fold: 256 S/Y, 257 T/R, 368 D/R or T, 370 E/R or Q, 384 Y/E, 421 K/L, 470 P/L, 475 M/S, 477 D/V – neutralizes MN, IIIB and RF [Kang94]
- MAG 55: Called #55 – binding reciprocally inhibited by other anti-CD4 binding site MAbs, and by some C1-C5 MAbs – binding enhanced by anti-V3 MAb 110.5 and anti-V2 MAbs G3-136 and G3-4 – enhances binding of many anti-V3 and -V2 MAbs. [Moore & Sodroski(1996)]

	MAb ID	Location	WEAU	Sequence	Neutralizing	Immunogen	Species(Isotype)
483	MAG 72	gp120(CD4BS dis)	gp120(dis)	DISCONTINUOUS	L	sCD4-(rHXB2 gp120)-complex	murine

Donor: C. Y. Kang, IDEC Inc

References: [Kang94]

NOTES:

- MAG 72: Amino acid substitutions that reduce binding 10 fold: 257 T/R or A or G, 262 N/T, 368 D/R or T, 370 E/R or Q, 384 Y/E, 421 K/L, 477 D/V – neutralizes MN, IIIB and RF [Kang94]

484	MAG 86	gp120(CD4BS dis)	gp120(dis)	DISCONTINUOUS	L	sCD4-(rHXB2 gp120)-complex	murine

Donor: C. Y. Kang, IDEC Inc

References: [Kang94]

NOTES:

- MAG 86: Amino acid substitutions that reduce binding 10 fold: 256 S/Y, 257 T/R, 368 D/R or T, 370 E/R or Q, 384 Y/E, 421 K/L, 470 P/L, 477 D/V – neutralizes MN, IIIB and RF [Kang94]

485	MAG 96	gp120(CD4BS dis)	gp120(dis)	DISCONTINUOUS	L	sCD4-(rHXB2 gp120)-complex	murine

Donor: C. Y. Kang, IDEC Inc

References: [Kang94]

NOTES:

- MAG 96: Amino acid substitutions that reduce binding 10 fold: 256 S/Y, 257 T/R, 368 D/R or T, 370 E/R – weak neutralization of IIIB [Kang94]

486	MAG 116	gp120(CD4BS dis)	gp120(dis)	DISCONTINUOUS	L	sCD4-(rHXB2 gp120)-complex	murine

Donor: C. Y. Kang, IDEC Inc

References: [Kang94]

NOTES:

- MAG 116: Amino acid substitutions that reduce binding 10 fold: 256 S/Y, 257 T/R, 368 D/R or T, 370 E/R or Q, 384 Y/E, 421 K/L – neutralizes MN, IIIB and RF [Kang94]

487	MAG 3B	gp120(CD4BS dis)	gp120(dis)	DISCONTINUOUS	N	sCD4-(rHXB2 gp120)-complex	murine

Donor: C. Y. Kang, IDEC Inc

References: [Kang94]

NOTES:

- MAG 3B: Amino acid substitutions that reduce binding 10 fold: 256 S/Y, 257 T/R or A or G, 262 N/T, 368 D/R or T, 370 E/R or Q, 381 E/P, 384 Y/E, 421 K/L, 475 M/S, 477 D/V [Kang94]

488	MAG 12B	gp120(CD4BS dis)	gp120(dis)	DISCONTINUOUS	L	sCD4-(rHXB2 gp120)-complex	murine

Donor: C. Y. Kang, IDEC Inc

References: [Kang94]

NOTES:

- MAG 12B: Amino acid substitutions that reduce binding 10 fold: 257 T/R, 368 D/R or T, 370 E/R or Q, 384 Y/E, 477 D/V – weak neutralization of IIIB [Kang94]

	MAb ID	Location	WEAU	Sequence	Neutralizing	Immunogen	Species(Isotype)
489	MAG 29B	gp120(CD4BS dis)	gp120(dis)	DISCONTINUOUS	L	sCD4-(rHXB2 gp120)-complex	murine

Donor: C. Y. Kang, IDEC Inc

References: [Kang94]

NOTES:

- MAG 29B: Amino acid substitutions that reduce binding 10 fold: 257 T/R, 368 D/R or T, 370 E/R or Q, 384 Y/E, 386 N/Q, 421 K/L – weak neutralization of IIIB [Kang94]

490	120-1B1	gp120(CD4BS dis)		DISCONTINUOUS	L		human()

Donor: Virus Testing Systems Corp., Houston, TX

References: [Watkins93]

NOTES:

- 120-1B1: A neutralization escape mutant (HXB2 A281V) was selected by growth of HXB2 in the presence of broadly neutralizing sera – 120-1B1 was not affected by this mutation [Watkins93]

491	MAG 6B	gp120(dis)	gp120(dis)	DISCONTINUOUS	N	sCD4-(rHXB2 gp120)-complex	murine

Donor: C. Y. Kang, IDEC Inc

References: [Kang94]

NOTES:

- MAG 6B: Amino acid substitutions that reduce binding 10 fold: 256 S/Y, 257 T/R or G or A, 262 N/T, 368 D/R or T, 370 E/R or Q, 381 E/P, 384 Y/E, 421 K/L, 475 M/S, 477 D/V [Kang94]

492	17b	gp120(CD4i dis)	gp120(dis)	DISCONTINUOUS	L P(weak)	HIV-1 infection	human

Donor: J. Robinson, Tulane University, LA

References: [Thali93, Moore93d, Thali94, Beretta & Dalgleish(1994), Wyatt95, Sattentau95a, Moore & Sodroski(1996), Poignard et al.(1996a), Wu et al.(1996), Trkola et al.(1996)]

NOTES:

- 17b: 48d and 17b have similar epitopes, and the pair are unique among human and rodent MAbs
- 17b: Epitope is better exposed upon CD4 binding to gp120 – competes with 15e and 21h, anti-CD4 binding site MAbs – 113 D/R, 252 R/W, 257 T/A or G, 370 E/D, 382 F/L, 420 I/R, 433A/L, 438 P/R and 475 M/S confer decreased sensitivity to neutralization [Thali93]
- 17b: Binding of 48d is much more influenced by sequence variation among molecular clones of LAI than is binding of 17b [Moore93d]
- 17b: A mutation in gp41, 582 A/T, confers resistance to neutralization (also confers resistance to MAbs F105, 48d, 21h and 15e) [Thali94]
- 17b: Studies using a V1/V2 deletion mutant demonstrated that enhanced binding of 17b in the presence sCD4 involves the V1/V2 loops, with more significant involvement of V2 – similar effect observed for 48d and A32 [Wyatt95]
- 17b: Binds with higher affinity to monomer and oligomer, slow association rate, poor neutralization of lab strain – this is in contrast to 48d, which has very different kinetics [Sattentau95a]
- 17b: Many MAbs inhibit binding (anti-C1, -C5, -C4, -CD4BS) – anti-V3 MAb 5G11 enhances binding, as do C1-C4 discontinuous epitopes A32 and 2/11c – enhances binding of some anti-V2 MAbs [Moore & Sodroski(1996)]
- 17b: Binding did not result in significant gp120 dissociation from virion, in contrast to 48d, although the the gp41 epitope of MAb 50-69 was exposed [Poignard et al.(1996a)]
- 17b: MIP-1α binding to CCR-5 expressing cells can be inhibited by gp120-sCD4 – binding of 17b blocks this inhibition [Wu et al.(1996)]
- 17b: Neutralizes JR-FL – inhibits gp120 interaction with CCR-5 in a MIP-1β-CCR-5 competition study [Trkola et al.(1996)]

	MAb ID	Location	WEAU	Sequence	Neutralizing	Immunogen	Species(Isotype)
493	48d	gp120(CD4i dis)	gp120(dis)	DISCONTINUOUS	L P(weak)	HIV-1 infection	human

Donor: J. Robinson, Tulane University, LA

References: [Thali93, Moore93a, Moore93d, Thali94, Moore94b, Wyatt95, Sattentau95a, Moore & Sodroski(1996), Poignard et al.(1996a), Trkola et al.(1996)]

NOTES:

- 48d: 48d and 17b have similar epitopes, and the pair are unique among human and rodent MAbs
- 48d: Epitope is better exposed upon CD4 binding to gp120 – competes with ICR 39.13, 15e and 21h, anti-CD4 binding site MAbs – inhibited by anti-CD4BS MAb ICR 39.13g and linear anti-C4 MAbs G3-42 and G3-508 – 113 D/R, 252 R/W, 257 T/A or G, 370 E/D, 382 F/L, 420 I/R, 421 K/L, 433A/L, 438 P/R and 475 M/S confer decreased sensitivity to neutralization [Thali93]
- 48d: Called 4.8d – Neutralize IIIB – Reactive with SF-2 gp120 – does not inhibit HIV-1 sera from binding to IIIB gp120 [Moore93a]
- 48d: Binding of 48d is much more influenced by sequence variation among molecular clones of LAI than is binding of 17b [Moore93d]
- 48d: A mutation in gp41, 582 A/T, confers resistance to neutralization (also confers resistance to MAbs F105, 21h, 15e and 17b) [Thali94]
- 48d: Poor cross-reactivity with gp120 from most clades [Moore94b]
- 48d: Studies using a V1/V2 deletion mutant demonstrated that enhanced binding of 48d in the presence of sCD4 involves the V1/V2 loops, with more significant involvement of V2 – similar effect observed for 17b and A32 [Wyatt95]
- 48d: Binds with similar affinity to monomer and oligomer, moderate association rate, potent neutralization – this is in contrast to 17b, which has very different kinetics [Sattentau95a]
- 48d: Many MAbs inhibit binding (anti-C1, -C5, -C4, -CD4BS) – anti-C1-C4 discontinuous epitope MAbs A32 and 2/11c enhance binding – reciprocal enhanced binding with some anti-V2 MAbs [Moore & Sodroski(1996)]
- 48d: Binding resulted in gp120 dissociation from virion, mimicking sCD4, and exposure of the gp41 epitope of MAb 50-69, in contrast to CD4BS MAbs [Poignard et al.(1996a)]
- 48d: Neutralizes JR-FL – slightly inhibits gp120 interaction with CCR-5 in a MIP-1β-CCR-5 competition study [Trkola et al.(1996)]
- 48d: NIH AIDS Research and Reference Reagent Program: 1756

494	A32	gp120(CD4i C1-C4 dis)	gp120(dis)	DISCONTINUOUS	N	?	human

Donor: J. Robinson, Tulane University, LA

References: [Moore94b, Wyatt95, Moore & Ho(1995), Moore & Sodroski(1996), Wu et al.(1996), Trkola et al.(1996)]

NOTES:

- A32: Reacted with virtually every gp120 monomer of every clade tested, most conserved gp120 monomer epitope known [Moore94b]
- A32: Epitope is better exposed upon CD4 binding to gp120 – binding of A32 enhances binding of 48d and 17b – studies using a V1/V2 deletion mutant demonstrated that enhanced binding of 48d in the presence sCD4 involves the V1/V2 loops, with more significant involvement of V2 [Wyatt95]
- A32: Review: epitope is distinct from CD4BS MAbs, 48d and 17b, and 2G12 [Moore & Ho(1995)]
- A32: Reciprocal inhibition of binding of anti-C1, -C5, -C4, -V3 and anti-CD4 binding site MAbs – induces binding of some anti-V2 and sCD4 inducible MAbs (48d and 17b) – very similar competition pattern to 2/11c, A32 and 211/c are unique among known human and rodent MAbs [Moore & Sodroski(1996)]
- A32: Not neutralizing – binds domains that interact with gp41 – MIP-1α binding to CCR-5 expressing cells can be inhibited by gp120-sCD4 and binding of A32 does not block this inhibition [Wu et al.(1996)]
- A32: Does not neutralize JR-FL, or any strain strongly – partial inhibition of gp120 interaction with CCR-5 in a MIP-1β-CCR-5 competition study [Trkola et al.(1996)]

	MAb ID	Location	WEAU	Sequence	Neutralizing	Immunogen	Species(Isotype)
495	2/11c	gp120(C1-C4 dis)	gp120(dis)	DISCONTINUOUS	L(weak)	HIV-1 infection	human

Donor: J. Robinson, Tulane University, LA

References: [Moore & Sodroski(1996), Trkola et al.(1996)]

NOTES:

- 2/11c: 2/11c is also called 211c and 2-11c
- 2/11c: Inhibits binding of anti-C1, -C5, -C4, -V3 and anti-CD4 binding site MAbs – induces binding of some anti-V2 and CD4i MAbs (48d and 17b) – similar reactivity pattern to A32, but less cross-reactive and lower affinity – A32 and 211/c are unique among known human and rodent MAbs [Moore & Sodroski(1996)]
- 2/11c: Called 211c – does not neutralize JR-FL nor block gp120 interaction with CCR-5 in a MIP-1β-CCR-5 competition study [Trkola et al.(1996)]

496	N70-2.3a	gp120(272-509 dis)	gp120(dis)	DISCONTINUOUS	N	HIV-1 infection	human(IgG1)

Donor: J. Robinson, Tulane University, LA

References: [Robinson et al.(1990), Takeda et al.(1992)]

NOTES:

- N70-2.3a: Broad reactivity [Robinson et al.(1990)]
- N70-2.3a: Fc receptor mediated enhancement of HIV-1 infection – binds a conformational site in the carboxyl half of gp120, distinct from 1.5e [Takeda et al.(1992)]

497	6E10	gp120 (dis)	gp120(dis)	DISCONTINUOUS	L	rsgp160	?

Donor: Phil Berman

References: [Berman et al.(1991)]

498	C31	gp120(unknown)	gp120	?	N	HIV-1 infection	human($IgG_{1\kappa}$

References: [Boyer et al.(1991)]

NOTES:

- C31: Broadly reactive group specific – high yield cultivation of human MAb [Boyer et al.(1991)]

499	P5-3	gp120(unknown)	gp120	?	?	HIV-1 infection	human($IgG_{1\lambda}$)

Donor: Evan Hersh and Yoh-Ichi Matsumoto

References: [Robinson Jr. et al.(1990a), Pincus et al.(1991)]

NOTES:

- P5-3: No enhancing activity for HIV-1 IIIB [Robinson Jr. et al.(1990a)]
- P5-3: Poor immunotoxin activity when coupled to RAC – isotype specified as: $IgG_{3\lambda}$ [Pincus et al.(1991)]
- P5-3: NIH AIDS Research and Reference Reagent Program: 378

500	BAT401	gp120(unknown)	gp120	?	L	Inact IIIB	murine(IgG_1)

References: [Fung87]

501	BAT267	gp120(unknown)	gp120	?	L	Inact IIIB	murine(IgG_1)

References: [Fung87]

502	BAT509	gp120(unknown)	gp120	?	L	Inact IIIB	murine(IgG_1)

References: [Fung87]

	MAb ID	Location	WEAU	Sequence	Neutralizing	Immunogen	Species(Isotype)
503	13.10	gp120(unknown)	gp120	?	N	HIV-1 infection	human($IgG_{1\lambda}$)

Donor: Evan Hersh and Yoh-Ichi Matsumoto

References: [Lake et al.(1989), Moran et al.(1993)]

NOTES:

- 13.10: First HIV-1 specific human-mouse hybridoma that produces a MAb that binds to gp120 and gp160 [Lake et al.(1989)]
- 13.10: Heavy (V_HI) and light (V_λII) chain sequenced – no enhancing or neutralizing activity – called No. 13 [Moran et al.(1993)]
- 13.10: NIH AIDS Research and Reference Reagent Program: 377

504	HBW4	gp120(unknown IIIB)	gp120	?	?	HIV-1 infection	human($IgG_{1\lambda}$)

References: [Moran et al.(1993)]

NOTES:

- HBW4: Heavy (V_HII) and light (V_λII) chain sequenced [Moran et al.(1993)]

505	multiple Fabs	gp120(unknown)	gp120	?	?	HIV-1 infection	human

References: [Burton et al.(1991)]

NOTES:

- Fabs: A panel of anti-gp120 Fabs was generated by antigen selection from a random combinatorial library prepared from bone marrow from an asymptomatic individual [Burton et al.(1991)]